Geographies of the Liminal Dolphin: 
toward an understanding of the contested spaces of 
Dolphin-Assisted Therapy

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Declaration of Originality

I hereby declare that the work herein, now submitted as a thesis for the degree of Doctor of Philosophy of the University of the Sunshine Coast, is the result of my own investigations, and that all references to ideas and work of other researchers have been specifically acknowledged. I hereby certify that the work embodied in this thesis has not already been accepted in substance for any degree, and is not being currently submitted in candidature for any other degree.

Signature

Date May 27, 2014
“Involving cetaceans in therapeutic situations may usefully extend the range of human/animal bond research in ways which could be important to the mental and physical well being of many species, including humans… We may even come to acknowledge a primary human need to live cooperatively with other species. Finally, in the ironic fact of their sometimes unique capacity to guide us back to sanity, we may also acknowledge their qualitatively equal differences and therefore their equal rights to survival”

-- Patricia M. Hindley, Human/Animal Communication: Cetacean Roles in Human Therapeutic Situations, IWC Conference on Non-Consumptive Utilization of Cetacean Resources, 1983
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Re-entering academia as a mature-age student entails unique challenges. Among these challenges for me are long habituated uses of language and writing style that do not easily construct the kinds of sentences and arguments of a doctoral thesis. Learning a different ‘language’ and finding a voice in which to write has required an immersion in a seemingly bottomless sea of academic language, which was afforded by the generosity and resources of the University of the Sunshine Coast library. I owe it and the research staff there many thanks.

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### Acronyms

- **AAA** ...................................................... Animal-Assisted Activities
- **AAE** ........................................................... Animal-Assisted Education
- **AAI** ............................................................ Animal-Assisted Interventions
- **AAT** ............................................................ Animal-Assisted Therapy
- **ANT** ............................................................... Actor Network Theory
- **CAM** ........................................... Complementary and Alternative Medicines
- **CDTC** .......................................................... Curacao Dolphin Therapy Center
- **DAT** .............. Dolphin-Assisted Therapy or dolphin-assisted therapies
- **DHT** .......................................................... Dolphin Human Therapy, Inc.
- **MTRT** .......................................................... More-Than-Representational Theory
- **SWTD** .......................................................... Swim With The Dolphins
- **TAD** ............................................................... Test Animatronic Dolphin
- **QTA** .......................................................... Qualitative Thematic Analysis
Abstract

Dolphin-Assisted Therapy (DAT) is a field of therapies that have been developed to enable humans with disabilities to achieve improved lives. DAT occurs in a range of places and environments, is theorised in various ways, and is both criticised and supported in a polarised discourse. Its various geographic situations and debates make a socio-spatial understanding of DAT problematic. Previous research on animal-human interactions, and in particular in the scholarship of animal geographies, explores similar challenges from the perspectives of ‘the contact zone’, reimagining zoos and geo-ethics, but have not explored how interspecies work in therapies can be of significant mutual benefit, and in particular in relation to DAT. This research explores the socio-spatial constructions of DAT to reveal how they affect the therapies and human-animal relations more broadly.

Using a social-constructionist onto-epistemological paradigm, and drawing on non-representational theory, Actor Network Theory, and Foucault-inspired analysis, three methods of analysis were used to categorise the data: a genealogy of DAT’s history and development, a discourse analysis of academic and non-academic texts, and a case study of a DAT facility. Data was gathered by means of interviews, textual analysis, and personal observation. The findings showed that socio-spatial understandings of DAT are problematized by: varied degrees of proximity between humans and dolphins and the different regimes of knowledge produced by them; environments and their effects on relations between humans and dolphins; non-inclusive ethical theories; and a lack of theorising about mutual effects.

This thesis argues that hybrid proxemics, based on physical proximities and proximal and distal kinds of knowledge, produces significant understandings of the varied constructions of the heterotopian spaces of DAT. The contested spaces of DAT, produced by perceived transgressions and displacements of normalized places of human and dolphin lives are best understood by use of a hybrid geo-ethical framework. Mutualism is also a key geographic theory for understanding the many kinds of human/non-human interaction in DAT, opening a conception of relations that challenge received notions of dominance and anthropocentrism by acknowledging the affective and instrumental role of benefit across species boundaries.
One: Introduction

This research seeks to contribute to the reconceptualization of human-animal relations, part of a renewed interest in animal geographies, a subfield that constitutes a “journey across the species divide to construct a more inclusive social theory” (Wolch and Emel, 1995, p. 632). This project intends to develop new understandings of a relatively recent development in these relations in the form of a working relationship between humans and dolphins that is both widely accepted and supported and widely contested. Animal geographies, part of Human Geography, are part of a multi-disciplinary and emerging field of scholarship, Human-Animal Studies. These studies contribute to a broad academic shift toward a relational understanding of life and its processes. This research on the contested spaces of Dolphin-Assisted Therapy is aimed at understanding how intimate interspecies encounters intended to contribute to improved health outcomes (broadly defined), and the relationships involved in performing these encounters, affect and are affected by spatial formations, the divisions and connections of relationality.

For centuries, dolphins\textsuperscript{1}, who are large-brained sapient\textsuperscript{2} mammals, have been enclosed by humans in built environments for purposes of inter-species encounter (Taylor, 2003; Couquiaux, 2005). Beginning in the 1970s, enclosed dolphins (and later, free-ranging dolphins) have been included in a type of Animal-Assisted Therapy: Dolphin-Assisted Therapy (DAT). Animal-Assisted Therapies are broadly defined as therapies for humans that have psychological, emotional and/or physical goals of improvement in which animals are included. They will be discussed in more detail in chapter 5\textsuperscript{3}.

The enclosure of dolphins for various purposes, including human therapy, has attracted criticism from some scholars and from animal-protectionist organizations (Regan, 2004; Zamir, 2006; Bekoff, 2007; Brakes and Williamson, 2007; Rossiter,
To date, no academic studies have been done that explore the inter-species practices of DAT and its effects on the human experience of spaces or places. This research aims to describe and understand the many dimensions of this contested form of human-animal relationship. The inclusive terms ‘natureculture’, and, interchangeably, ‘socio-natural’ and ‘socio-spatial’ will be used in this thesis as conceptual means by which to understand the intertwined reality of cultural and physical factors that constitute human-animal geographies. In addition, throughout this thesis the terms ‘animal’ and ‘non-human animal’ will be used interchangeably. The category ‘animal’ is understood to include humans, but an overly-conscientious effort to always linguistically identify humans as animals, i.e., ‘human-animal’, does not further the central concerns of this research.

This chapter serves as a brief introduction to the complexity of Dolphin-Assisted Therapy. It begins with a brief overview of DAT and then describes the central research problems investigated by this research and the questions through which the research is addressed. A statement of the author’s positionality and a brief introduction to the structure of the thesis concludes the chapter.

**Dolphin-Assisted Therapy: an overview**

Dolphin-Assisted Therapy can be broadly understood as an animal-assisted therapy that utilizes representations of, and/or the presence and participation of dolphins. However, DAT differs significantly as it is theorised and practiced in various places, its precise definition remaining unsettled.

DAT can be found under the rubric of Complementary and Alternative Medicine (CAM), as described by Kurtz (2008, p. 65). CAM is, itself, a field of practices sometimes understood to be “non-evidence based … that are not presently considered within the domain of conventional medicine” (NHMRC, 2013, np) despite there being several international peer-reviewed journals that publish evidence-based research on CAM (Hindawi, 2013; Sage, 2013). As a result of this ‘border dispute’ over what is and what is not ‘conventional practice’, DAT occupies a contested space in contemporary health regimes.
Developed in the 1980s in the United States of America, DAT is currently offered in various places around the world. Thousands of families have used DAT as part of their efforts to provide therapies for their children with disabilities (and less frequently, for adults) with reports of positive effects (Nathanson, 1989; Nathanson et al., 1997; Nathanson, 1998a; Lukina, 1999, 2001; Antonioli and Reveley, 2005; Breitenbach et al., 2009; Chia et al., 2009; Schenk et al., 2009; Dilts, 2011; Lammermann, 2012; Salgueiro et al., 2012; Kohn and Oerter, 2013). Not all of these conclude that DAT is unequivocally effective as a treatment, however. For instance, two, Chia et al. (2009), and Salgueiro (2012), report significant effects in only some areas of treatment and recommend further research based on those effects found to be significant, and Dilts (2011) finds that DAT, while having some positive effects, should be developed further to improve outcomes.

Dolphin-Assisted Therapy is practiced in settings that vary from constructed pools (both indoor and outdoor), to natural coves separated from the ocean, to open ocean waters (see, for example De Bergerac, 1998; Nathanson, 1998a; Lukina, 1999; Antonioli and Reveley, 2005; Nathanson, 2007). It is currently (2013) being practiced in Japan, Singapore, Indonesia, China, Turkey, Israel, Ukraine, Spain, Mexico, Curacao, the Bahamas, Peru, Brazil, the United States of America, Grand Cayman Island, Venezuela and other countries (e.g., see Akiyama et al., 2005; Chia et al., 2009; Hoagland and Hoagland, 2009; Schenk et al., 2009; Nathanson, 2010; Batozsky, 2011).

DAT is primarily used in programs for children with disabilities or other special needs, although some adults are participants in DAT programs. Soldiers returning from combat zones suffering from Post Traumatic Stress Syndrome are a recent addition to the list of adults seeking therapies that include dolphins (i.e., Veteran Program, Hoagland and Hoagland, 2009). One DAT company in the United States (Dolphin-Human Therapy, Inc.) has documented over 70 different health or behavioural conditions treated by their therapy program (Nathanson, 2007). A program in Curacao reports that over 70 per cent of families who come to the Curacao Dolphin Therapy Centre (CDTC) return for further therapy within the first year following initial sessions, with over 3,000 family visits since the inception of the
program in 2003 (pers. com, Kuerschner, CDTC, 6/2/2011). Dolphin Human Therapy, Inc. reports over 40,000 individual sessions (4,000 patients) in a period spanning ten years (1995-2005), with patients from 60 countries and 39 US states (Nathanson, 2007).

**DAT’s Contested Spaces**

Dolphin-Assisted Therapy is problematic for various reasons. It exists at a nexus of intersecting “human–non-human relations [which] are inevitably embedded in the complex spatialities of the world” (Jones, 2000, p. 268). Questions about the therapy have been raised as to whether it endangers wild populations of dolphins (Dobbs, 2000b; Brakes and Williamson, 2007; Marino, 2007b; Rossiter, 2007) or is abusive of dolphins living in built environments (Birch, 1997; Balcombe, 2007; Brakes and Williamson, 2007). Scholars have questioned whether it is based on credible theories (Marino and Lilienfeld, 1998; Brensing et al., 2003; Marino and Lilienfeld, 2007b) and follows professional standards (Smith, 2003; Williamson, 2008). Some describe it as taking advantage of families in difficult circumstances (Smith, 2003; Rossiter, 2007). The ethics of the use of dolphins in DAT has been challenged by scholars from the disciplines of ethics (White, 2007), philosophy (Zamir, 2006), ecology (Bekoff, 2007, 2009), wildlife biology (Frohoff and Packard, 1995), law (Francione, 2010), and by numerous other academic and professional activists and their organizations (Iannuzzi and Rowan, 1991; Brakes and Williamson, 2007; Rossiter, 2007; Goodwin and Dodds, 2008; HSUS, 2009; O’Barry, 2009). Geographic research has not, until now, examined the field of human-dolphin relations in therapeutic settings.

Some of the critics of DAT have expressed concern about the negative effects upon local populations of dolphins when dolphins are captured and removed from their conspecifics to be enrolled in DAT programs (O’Barry and Coulbourn, 1989, 2000; Marino, 2007c; Marino, 2008; HSUS, 2009; O’Barry, 2009; Stewart and Marino, 2009). Acquisition of dolphins entails large financial investment: a single trained dolphin can be worth in excess of USA $100,000 (Bartlett, 2009). They are said to each produce earnings of as much as USA $1,000,000 per year (O’Barry, in Psihoyos, 2009). Facilities cost millions of dollars (US) to build (Jackson, 2007) and incur continuing and high operating expenses.
The places that are environmentally suitable to support dolphins for (outdoor) DAT programs are limited to sub-tropical and tropical locations (due to weather and water temperature). In addition, social conditions in countries located in otherwise suitable climatic regions can create limits on access to DAT programs. For example, unstable governments and social unrest can lead to threatening conditions for participants. Economically under-developed nations may lack adequate international transportation or have inadequate health services available as backup for patients. These limits are among factors that influence the movement from place to place of dolphins, human professionals (facility designers, therapists, trainers, veterinarians, managers, and researchers), animal protectionist groups, and the families whose children are in need of therapy. Protectionist activities further limit places for DAT by fostering oppositional social environments for it in otherwise suitable locations (Balcombe, 2007; Marino, 2007a), thereby influencing the distance and expense of travel for families, human professionals and dolphins.

In the public domain, DAT and its effects have received widespread, mostly positive, coverage (e.g., Graham, 1999; Powell, 2001; Kuhnert, 2002; Ito, 2003; Mordaunt, 2010-2013; Prager, 2011). On the other hand, international animal protectionist organizations have mounted significant campaigns opposing it. These include a series of booklets from the Whale and Dolphin Conservation Society (Vail and Risch, 2006; Brakes and Williamson, 2007); statements by Cetacean Society International (Rossiter, 2007); and campaigns by the Humane Society of the United States in cooperation with the World Society for the Protection of Animals (Rose et al., 2009); and by a host of smaller, regional organizations (e.g., Carry, 2009; MarineConnection, 2011; Mountain, 2011; One Voice, 2011). Some scientists have actively supported agenda-driven advocacy to advance animal protectionist goals in opposition to DAT (Bekoff and Goodall, 2004-2011; Marino and Lilienfeld, 2006; Balcombe, 2007; Marino, 2007d, 2007c, 2007b; 2008; Herzog, 2011; Vance, 2011). Meanwhile, children, families, therapists, dolphin trainers, and dolphinarium staff and management have continued to participate in this contested form of therapy and new places for the provision of therapies that incorporate dolphins are being built.
Dolphin-Assisted Therapy and Research
Relatively little formal research has been done attempting to determine the efficacy of DAT and the means by which dolphins might or might not add certain unique qualities to the therapeutic endeavour. In a preliminary review of literature about dolphin-assisted therapies undertaken for this research, only eighteen peer-reviewed texts\(^5\) were found. Some authors have questioned the rigor of the methodologies adopted in this research (Marino and Lilienfeld, 1998; Humphries, 2003; Marino and Lilienfeld, 2007b; Fiksdal et al., 2012).

An important factor in DAT is the agency of dolphins, including their individual intentionality. While broadly acknowledged in popular media (Tors, 1964-67, the "Flipper" movies and television series; many other forms of popular entertainment: children's cartoons, websites, and books), the agency of dolphins and its role in socio-natural settings is under-examined (Taylor, 2009; Warkentin, 2009, 2011; Taylor and Carter, 2013). No research to date has been undertaken on the agency of dolphins and DAT.

Significance of this Research
This research is within the sub-discipline of Human Geography, exploring animal geographies as they intersect in complex ways. It investigates the spaces of Dolphin-Assisted Therapy as places of healing, of ethical confrontation between opposing humans, and of entangled lives of dolphins and humans working together. DAT takes place at an intersection of human and non-human difference, where differences are unsettled and unsettling, creating an environment of contested meanings. Research on DAT to date has engaged little with the newer contemporary thinking in the growing and broad field of animal studies, in particular the concepts around the socio-natural co-production of space by human and nonhuman-animals. The DAT discourse comprises various theories and this research is not focused on whether these theories are accurate descriptions of DAT. Instead it seeks to understand how supportive, oppositional, and ‘different’ arguments construct the socio-natural spaces of DAT and to develop a more informed understanding of human-animal relations. The term ‘different’ is introduced to distinguish views and concepts that neither oppose nor support DAT, but instead constitute variations of its forms and practices.
The Research Problem

Understanding of human relations with non-human animals remains unsettled. In particular, questions across biological and environmental concerns, as well as anthropocentric concerns such as ethics, economics, and cultural values continue to unsettle human understanding of this complex topic. Geographers study the spaces and places produced by these relations and in which relations occur to gain further understandings. Work to dissolve the binary separation between social and natural categories (Whatmore, 2002b; Latour, 2005; Haraway, 2008), recognising their hybridity, seeks to better inform understandings of their co-construction. The scholarship around hybridity and the liminality of certain species, those whose ‘becoming’ has contributed to and been produced by human culture, has made some progress in developing understanding of human-animal relations (Hearne, 1995; Haraway, 2008; Collard, 2009; Power, 2009; Bear, 2011), but more progress is needed.

The Research Question

It is the overall aim of this research to close gaps in animal geographies by analysis and interpretation of one of the spaces of interaction in the landscape of inter-species interactions. Space, in this research, is understood to be the "fundamental stuff of geography" (Thrift, 2009). Using a descriptive and analytical interpretation of spaces, which are “the outcome of a series of highly problematic temporary settlements that divide and connect things” (Thrift, 2009, p. 95), this research explores the ways in which divisions and connections – contested spaces – are constructed, practiced, experienced, and resisted between humans and between humans and other animals. It does this by analysis and interpretation of relations between humans, and with dolphins, in the context of therapy. It is assumed in this research, as given, that Dolphin-Assisted Therapy is contested, both within and outside its community of practice, by those who challenge its constructions, representations, and/or practices.

To develop significant and useful understandings of this type of human-animal interaction a research question is posed:
“How are the contested spaces of Dolphin-Assisted Therapy theorized, practiced, experienced, and resisted?”

To answer this question sub-questions have been developed to guide the research. These sub-questions are:

1. What are the key socio-spatial arguments in support of and in opposition to DAT and how do they settle or unsettle its discourse and performance?
2. What are the socio-spatial connections and divisions in the various representations of the dolphin and its role within the discourse of DAT?
3. What are the socio-spatial effects of DAT within and beyond its community of practice?
4. Are there different definitions of Dolphin-Assisted Therapy, and if so, how is it variously constructed within and beyond its practice?

Positionality

I have had many years of interest in human-dolphin interactions and am an author of a popular-press book on the topic (Taylor, 2003), a writer and presenter of a documentary film about it (Mordaunt, 2010-2013), a lecturer about it, and dolphin-encounter guide. I have designed and led a Wellness Program that included swimming among dolphins in a marine-animal rescue facility (Taylor and Hain, 2006-2008, 2010). This informs my understanding of some of the dynamics of dolphin encounters, and helps me to gain access to people and organizations in the field of DAT. The potential for undue assumptions, due to my long association with the discourse of dolphin-human relations, and particularly Dolphin-Assisted Therapy, necessitates a clarification of these associations (Cresswell, 2009, p. 192). I acknowledge the subjective nature of interpretation and how my lifeworld influences will be reflected in this research. More importantly, I make a commitment to engage in an ongoing reflexive and transparent process, re-examining my attitudes and results at each stage of the project to make clear any presuppositions that might affect the outcome of this research. Alongside this general commitment I also acknowledge that transparent reflexivity is, itself, fraught with unknowable power relations (Rose, 1997, pp. 311-314) and struggles to bridge notions of difference and sameness between researcher and researched (Katz, 1994). Instead, my commitment is along the lines of an intent to retain openness to differing views as I reflect on my role as researcher.
with my own personal history, seeking to act as a ‘between’ (Rose, 1997, p. 313) or means by which situated knowledge can be witnessed by others. This brings into question the notion of ‘betweenness’. As described by England (1994), “this “betweenness” is shaped by the researcher’s biography, which filters the “data” and [the] perceptions and interpretations” (1994, p. 251). As such, my own special access to the spaces in which DAT is theorised, practiced, experienced and resisted affords me an opportunity to serve as a witness, and to report what is observed and experienced, as “partial knowledge” (McDowell, 1992, p. 402) constructed by myself and by others. While it is impossible for me to know all of the power relations that shape this (Rose, 1997, pp. 312-314), the partial and situated evidence I collect, analyse, and interpret is offered in good faith, knowing that others may have witnessed other aspects of the circumstances I investigate and may arrive at different conclusions (Rose, 1997, p. 319). As Rose points out, “The authority of academic knowledge is put into question not by self-conscious positioning but by gaps that give space to, and are affected by, other knowledges” (1997, p. 315). I acknowledge that other knowledge may affect what is produced here and that gaps necessarily remain due to various factors. Among these are the limited scope of this research, both in its focus and in its non-multi-disciplinary methodologies, as well as the sympathies held by the researcher based on his lifeworld.

This project does not advocate for or oppose Dolphin-Assisted Therapy, nor is it intended to provide justification for its varied practices. It recognises that, as part of the practices of enclosure, there are circumstances in which dolphins are injured, suffer, and have been removed from the ocean commons for reasons that are driven by the commodification of animal bodies and agencies (Johnson, 1990; White, 2007; Rose et al., 2009). I recognise that these circumstances constitute significant challenges to the geo-ethical legitimacy of DAT practices. I also recognise that not all circumstances of enclosure can be so described. In the interest of better informing the discourse of Human-Animal Studies and human-animal relations as a whole, this research seeks to develop an understanding of the socio-spatiality of DAT in a geo-ethically grounded and engaged manner. The concerns of those who advocate for and against Dolphin-Assisted Therapy are reviewed and analysed and discussed from the perspective of Human Geography. As I understand it, following Haraway (2008) and Lorimer (2010), Human Geography is a discipline in which the world in all its
varieties, and the entities who inhabit the world, are viewed as entangled co-creators of the spaces (and places) in which they live, inter-subjectively engaged in species-specific lives seeking fulfilment. From that perspective, this research has been undertaken in an effort to develop understandings of an existing arena of circumstances in which multiple actors are seeking fulfilment while also engaged in sometimes contested relations. These contestations produce spaces that may affect the actors to some degree and this research seeks to understand how those who participate in DAT may be affected.

A Brief Outline of this Thesis
This thesis is comprised of nine chapters. It begins with this introductory chapter, followed by a review of literature that informs its understandings of the socio-spatial concepts in the recent scholarship of Human Geography that are relative to animal geographies. Chapter 3 presents the worldview and research strategies that frame the research. Chapter 4 describes the methods employed in the acquisition of data and in its analysis. The findings of these methods of analysis are presented in three chapters. Chapter 5 presents a genealogy, or a historic discourse analysis, that draws upon textual and interview data to produce a conceptualization of the complexities of DAT. A contextualizing topology of DAT is produced to show how DAT is variously constructed and practiced within and beyond its practice. Chapter 6 provides a discourse analysis that constructs categories that emerged from textual and interview data, and shows key socio-spatial arguments in support of and in opposition to DAT. Chapter 6 explicates connections and divisions in representations of dolphins and their role across the discourse of DAT. Chapter 7 presents a case study of a therapy program operating at a facility dedicated to DAT. It draws on texts, interviews and direct observations by the researcher to construct an analytical narrative. Chapter 8 provides an interpretation of the findings in chapters 5, 6, and 7 in terms of their socio-spatial effects within and beyond DAT’s community of practice, discussing its implications for understanding DAT and for the ways this research contributes to animal geographies. The final chapter is comprised of conclusions, discussing possible effects of the findings herein on various practices, and how future research could take its conclusions further.
Chapter Two: Literature Review

This research draws on the scholarship of Animal Studies (sometimes called Human-Animal Studies), “an emerging field of cross-disciplinary scholarship devoted to the investigation of the relationships between human and nonhuman animals and their environments” (AASG, 2011). While most of this literature is situated in Human Geography and its sub-discipline, animal geographies, important insights from other disciplines are also required. As Lynn points out in regard to achieving a ‘triangulation’ of understandings, an interdisciplinary approach inclusive of texts from many discourses “may substantially improve the rigor and communicative competence of the scientific, social, and ethical discourses about [dolphins]” (2010a, p. 87). The review draws, therefore, upon a broad variety of sources.

Notwithstanding the variety of source materials, this research is a project within the nexus that is Human Geography, the study of where ‘natural’ and ‘social’ phenomena intersect in the creation of relational spaces. This review begins with an introduction to animal geographies, then reviews texts that inform this project regarding spaces of interaction and geographic notions of spatial constructions in which humans and animals are engaged in working out relationships. The final section reviews the literature about the geo-ethical dimensions of human-animal interaction, recognising that the central arguments (although not all) in opposition to DAT are based on ethical concerns.

An Introduction to Animal Geographies

Animal geographies are a field of inquiry in Human Geography because it involves studies of animals, not as external elements in a human narrative, as found in psychology, anthropology and sociology, but as actors whose uses of, needs for, and effects upon space and place is inherently an entangled element of human experience.
Human Geography is the study and analysis of human-environment interactions, spaces, and places (Baerwald, 2010). Geography itself is sometimes more narrowly defined as the study of place (Johnston, 1996; but see Baerwald, 2010 and Thrift, 2009). Place is a complex, multidimensional notion, not easily defined. In Human Geography, places are broadly described, for humans, as “territories of meanings” (Relph, 1996, p. 906). “‘Territories of meanings’ is an apt description when referring to the places co-created with animals in human life, because non-human animals share many human-built spaces, in varied guises. They appear as chattel; as companions; as food; as experimental subjects; as commodities; as embodiments of wildness; as transportation; as actors; as spiritual – and physical – guides; as sources and symbols of danger, love, peace, joy, death, wisdom, and health. For some they are accepted as equals in the ‘moral community’ (e.g., Bekoff, 2007; Irvine, 2007). Their presence occurs at actual sites and/or representations of these sites, places where shared experience provides a basis for meanings. With the same (and different) biological and sensory systems, non-human animals are among those whose experiences bring meaning to a place, both as individuated entities with their own teleological imperatives, and as relational co-constructors of places and spaces (but see Johnston, 2008, p. 639).

Space also has many definitions. In physical geographic scholarship it is typically understood as

“absolute space…understood as a geometrical system or organization…within which people and objects are located and move through. Here, space is understood as natural, given, essential, and measureable” (Kitchin, 2009, p. 268).

However, in Human Geography there are other definitions. In this research space is thought of in terms of ‘relational space’:

“relational understandings of space conceive of space to be contingent and active, as something that is produced or constructed by people through social relations and practices. Space is not an absolute geometric container in which social and economic life takes place, rather it is constitutive of such relations” (Kitchin, 2009, p. 268).
It is to a particular variety of spaces where humans and animals co-construct an array of meanings (DAT spaces) that this research turns. This is possible because contemporary science understands animals to be more than ‘machines’ without minds or feeling, as Descartes famously described them (1641), or as hierarchically inferior beings due to a lack of evolutionary progress (Darwin, 1871), and now understands human and non-human animals to have agencies that are and have always been intermingled (Latour, 2004b; Barad, 2007; Haraway, 2008). The ‘question of the animal’ (Calarco, 2008) found in Human Animal Studies, that is, whether ‘the animal’ exists as such (Derrida, 2002), or whether ideological premises construct notions of ‘the animal’ that have effects on understandings of spaces and places (Emel, 1995; Haraway, 2008; Jones, 2000; Luka, 2009; Philo and Wilbert, 2000; Wolch and Emel, 1998; Wolch, 2007), is a central concern of a new sub-discipline within Human Geography. This has given impetus to the emergence of a new “Cultural Animal Geography” as suggested by Bennett (1960), and is now found under the more encompassing name of animal geographies.

Animal geographies is not a sharply delineated field within Human Geography. While individual examples of geographic studies that include social aspects of animals in human culture had appeared earlier in the 1990s, animal geographies as such developed in the late 1990s (Emel and Wolch, 1998; Philo and Wolch, 1998). Its literature is drawn from Animal Studies, which has a primarily cultural focus (Shapiro, 2008), using both qualitative and mixed methodologies in its research.

By the end of the 1990s animals and their role in human interactions with spaces – in built environments, and especially wild environments – were being studied outside the areas of ecologies and economies, taking a central role in two seminal collections of scholarly studies (Wolch and Emel, 1998a; Philo and Wilbert, 2000). From these studies animals became more widely understood as inter-subjective non-humans, taking their place in an acknowledged geography of the “more than human world” (Whatmore, 2002b, p. 146; 2006). Animals, in animal geographies, have been transformed from living elements of landscapes, as they were in the beginnings of geographic thought, to partners sharing inter-subjective experience. As “companion species, and significant others to one another [who] shape natureculture” (Haraway,
animals have become recognized as fully entangled, spatially embedded co-constructors of knowledge.

Animal geographies seek to develop understandings of both humans and non-humans, who can both experience displacement, “[t]he act of unsettling the taken-for-granted or generally accepted” (Lehtinen, 2009, p. 320) in socio-spatial orderings. The displacement of animals is not infrequently studied in animal geographies. Taking the ‘unsettling’ of wild animals into ‘the zoo’ as a focus of study, it is understood by some geographers thus:

“[s]ince it is mostly humans who orchestrate these movements, the story of the zoo animal’s physical … displacement … is inherently also a story of human domination and imperialist control” (Braverman, 2011, p. 1695).

This, however, does not describe the displacement experienced by humans in their relations with other animals. Callon, in one of the seminal works on Actor-Network Theory (1986), a work that underpins much of animal geographies, describes humans, in relation to a population of scallops they are attempting to manage, as having been “displaced from their homes to a conference room” (1986, p. 15). Callon notes that “[d]isplacements occurred at every stage” (1986, p. 18) of the project, describing both human and scallop displacements across networks of relationships. This inclusion of both types of actor in descriptions of displacement is relatively rare. An analysis of the texts, images, and interviews of this project will be sensitive to displacements of both types of actor so as to further bridge this gap.

Hybrid Geographies, Natureculture, and Agency

Geography, as a discipline, seeks to develop understandings across a broad range of topics, “especially the dynamics of interaction within and across spaces and places” (Baerwald, 2010, p. 497). As such, it includes studies of the natural world and of social interactions. In an effort to diminish undue separation of these two interdependent domains, by collapsing them into one, Haraway coined the term ‘natureculture’ (Haraway and Goodeve, 2000), a hybrid construction.

The hybridity of physical-domain and human factors and its reflection in geography has been explored and explicated by various geographers (Kwan, 2004). Whatmore
(2002b), for instance, traces the non-dual (hybrid, natureculture) qualities of leopards, crocodiles, and especially, elephants (and soy beans) as examples of the networks of relationship that comprise their becoming. In doing so she elucidates some of the varieties of geographic entanglement of humans with non-humans. She describes elephants in numerous ways. These include: as coded items of international concern which is shared within a framework of ‘collection management’ based on ‘stud books’; as the focus of promotional campaigns; as representatives of their species to be displayed for educational purposes; as a living part of an illusory representation of a ‘natural context’; as sites of production (income earners for zoos, and for a remote research station in Nigeria); as wombs for breeding more elephants; as social companions with human caretakers; as consumers of large amounts of food each day; as resisters to change when a new enclosure is provided; and as doubtful participants in any ‘reintroduction to the wild’ program. This lengthy list textually represents the continuous network of relations between ‘the natural elephant’ and the social constructions of its presence in the built environment. Whatmore describes a hybrid geography in which no real distinction can be made between the natural and cultural factors that describe elephants. This list aligns closely with a description of the natureculture of dolphins living in the spaces and places of DAT facilities.

Whatmore and other geographers using the concept of natureculture, however, do not explore other important factors in the hybridity of non-human animals. Animal protectionists and scholars who call upon various moral arguments to challenge the presence of ‘wild animals’ within cultural precincts [zoos and public aquariums] (e.g., Regan, 2004; Acampora, 2005; Francione, 2010) are not represented in Whatmore or other geographers’ work on the topic of natureculture. These three scholars’ work on moral arguments provides discursive foundations for many of the oppositional constructions of DAT and other human-animal relational zones, and the absence of analysis of their work represent a significant gap in the literature. Nor are health-promoting programs that enlist animals represented in Whatmore or other geographers’ explications of the networks of non-human and human relations. In addition, the role of non-human animals in naturecultural constructs as an outcome of their agency, when this is defined as intentionality (see below), is under-acknowledged (but see Collard, 2009; Power, 2009).
The agency of non-human animals is a complex topic, one that has led to extensive scholarly work on its various understandings (e.g., McFarland and Hediger, 2009). Whatmore offers a general, but vague, definition of agency with its roots in Actor-Network Theory (see Chapter Three) that opens the possibility of agency being found in non-humans: “Agency is (a) relational effect generated by a network of heterogeneous, interacting components whose activity is constituted in the networks of which they form a part” (in Massey et al., 1999, p. 23).

The complexity of agency goes further. Whereas an entry in a geographer’s dictionary simply defines agency as “The ability of people to act, usually regarded as emerging from consciously held intentions” (Sharp, 2000, p. 347), this limitation of agency as a property of ‘people’ (assuming this is meant to refer to humans) is challenged by Luka (2009). In analysis of a documentary film in which a man and his girlfriend, who are studying grizzly bears, are killed and eaten, the point is made that:

“the grizzly is not an agent because he kills a man [sic], but rather because he elects to kill a man amid a collection of other edible entities. The fact that Treadwell survived for thirteen years in Alaska without being attacked, and that grizzly attacks are rare in general, is attributable to this condition [that is, agency]” (Luka 2009, p. 86).

It is important to note that Luka does not deny intentionality in the ‘election’ of the bear to either kill or not kill. An additional factor in defining the subtle ways in which intentionality plays a role in agency is made by Giddens, who points out that agency may not always be directly intentional as it might be understood among human actors who cogitate prior to an intended action, but can be more broadly understood as an effect that is “reflexively monitored” (1984, p. 3) in a feedback loop, leading to further actions modified by such pre-cognitive monitoring.

For the purposes of this thesis agency is understood in several ways. First, as the kind of ‘field effect’ of networking components that generate relations, such as is identified by Whatmore (in Massey et al., 1999, p. 23) and with those relations identifiable as entities as articulated by Law and Callon:

“Entities -- human, non-human, and textual -- aren't solid. They aren't discrete, or clearly separated from their context. They don't have well-established
boundaries. They aren't, as the jargon puts it, distinct subjects and objects. Instead they are sets of relations” (Law and Callon, 1997, p. 7).

Importantly for this research, Law and Callon point out that “a real agent [can] resist, and modify the actions of others” (1997, p. 8), indicating that agency can be generated either with or without conscious intention, which leads to the second way agency is understood here.

Secondly, agency is understood in relation to effects produced by both human and non-human animals, and dolphins specifically, as intentionality, that is, “the choice to act” (see Taylor, 2009 and Taylor and Carter, 2013 for extended discussion of the agency of dolphins). In seeking an understanding of human-dolphin spaces and how both kinds of animal produce its spaces, Giddens’ contribution to a nuanced conception of agency is important as it applies to non-humans. With the research into self-awareness of dolphins (Marten and Psarakos, 1995; Reiss and Marino, 2001) that highlights the capacity for dolphins to ‘reflexively monitor’ themselves, they have become identified as conscious agents with relatively unique capacities. Along this line of reasoning the expression of agency by whales and dolphins in captive environments is investigated by Warkentin (2009, p. 23-43), examining how dolphins interact with “affordances” (pp. 32-36), opportunities to control interaction with human visitors. Warkentin analyses cetacean agency as choices, the intentional selection of opportunities for action. Their choices play important roles in the development, practices, experiences of, and resistance to, the spaces and places of DAT, evidence of which will be presented in the case study in Chapter Seven. The agentic dolphins (Taylor, 2009; Taylor and Carter, 2013) of DAT, as the liminal animals central to this research project, serve as an opening for a more comprehensive understanding of the hybridity of natureculture, and thereby, human-animal relations.

Spaces of Interaction
Seeking to understand the experientially intimate spaces created in the practices of DAT, this research turns to scholarship dealing with spaces of interaction between humans and non-humans. Spaces of interaction with animals are relational spaces, and are characterized by multiple constructions (e.g., Tuan, 1984; Whitehead, 1990;
Haraway, 2008; Rose et al., 2009; Marino et al., 2010). The following sections review literature relative to interaction spaces.

**Spaces of Interaction: Enclosures**

Most DAT occurs within the boundaries of a built environment. The DAT methodologies that utilize behavioural, cognitive, and performance-modification methods for persons with disabilities – children especially – require dolphins to be in safe, easily accessed environments where interactions are repeatable. For this reason, DAT occurs mostly with dolphins living in constructed pools (see Chapter 5).

Some scholars in Animal Studies (Hearne, 1995; Jones, 2000; Hallman and Benbow, 2006; Bostock, 2008; Chrulew, 2010) accept animal-human interaction (broadly defined) in environments such as public zoos and aquariums, understood as having been constructed for purposes of education, entertainment, and conservation as, at least potentially, having legitimate social value. Many scholars, however, do not (for a selection of authors opposing such interactions, see Acampora, 2010b). Zoos have been variously criticised as sites of: ethically indefensible captivity; colonialist domination; financially driven exploitation of enslaved animals; mis-education; and false claims of conservation (e.g., Malamud, 1998; Jamieson, 2002a, 2002c; Vining, 2003; Zamir, 2007).

Anderson’s studies of zoos (1995, 1998) problematize notions of wildness, domestication, and historical eras of social ‘progress’ as reflected in such spaces. In her study of the Adelaide Zoo (1995), Anderson traces the history of zoos, from menageries of exotic species maintained by royalty (over a period of at least 3,000 years), to the colonialist enterprise of orientalised nature, its flora and fauna captured, tamed, and brought into ‘civilised’ spaces for the entertainment and education of humans. Her history extends into the current era, when zoos construct themselves as conservation centers and ‘bio-banks’, with their animal collections housed in ‘natural’ surroundings. Public large-scale aquariums and/or purpose-built dolphinariums are often conceived of as similar places. However, since the advent of the intentional enclosure of dolphins, beginning in the United States in 1938, developing ideas about human-dolphin interaction have produced enclosed water environments specifically designed for closer proximity with animals designated as ‘wild’ for interactions that
are intimate, haptic, skin-to-skin and eye-to-eye (Marineland, 2013). This constitutes a new geographic space, one now being replicated for in-water interaction with other non-domesticated animals such as seals, sea lions, beluga whales, whale sharks, turtles, and sea otters (see below).

Captivity is an unsettled concept\(^7\), yet is normalised by many researchers. Representative of some literature, Jamieson asserts:

“…there is a moral presumption against keeping animals in captivity, and although zoos do provide benefits in the areas of entertainment, research, education, and preservation, they are not significant enough to overcome this presumption” (2002b, p. 195).

Jamieson reveals a key premise, one prevalent across much of animal geography (see below), by identifying this ‘moral presumption’. In a pair of preceding chapters [Against Zoos and Zoos Revisited in Jamieson, 2002b, pp. 167-189] Jamieson defines the moral presumption upon which he criticizes the spaces, places, and environments of zoos, which are “surely true” (2002b, p. 167):

“in being taken from the wild and confined in zoos, animals are deprived of a great many goods [including] generally behaving in ways that are natural to them…This conclusion is not the property of some particular moral theory; it follows from most reasonable moral theories” (2002b, p. 167).

Jamieson concludes that “an interest in not being taken from the wild and kept confined” (2002b, p. 167) constitutes a sufficient basis for rejecting all captivity. However, he provides no definition of what ‘behaving in ways that are natural’ might mean, and effectively denies the now widely accepted agency, mind, and adaptive capacity of non-human animals (Low et al., 2012). He also does not allow for circumstances that are based on a compassionate ethic of care (Donovan, 1996; Clement, 2003) that are often the case in places where animals have been rescued from deadly circumstances and have undergone rehabilitation and subsequently not been released, such as occurs in wildlife centers, zoos, and aquariums.

Anderson, in her work on zoos (1995, 1998), is critical of the institution of zoos, holding an apparent ‘moral presumption’ against them\(^8\), as do scholars across the cognate disciplines of Animal Studies (Noske, 1997; Wolch and Emel, 1998a; Bekoff,
Acampora finds zoos to be a form of pornography, where “their subjects are made to disappear precisely by overexposing them” (2005, p. 69).

Not all of the literature on the spaces of interaction holds this ‘moral presumption’. Jones (2000), in his exploration of the complex geo-ethical relations between humans and non-humans, includes zoos (and by implication, dolphinariums) as places where relations can be experienced as ethical, spaces of an “emotional community [with] dolphins and certain primates” (2000, p. 282). His research highlights the heterotopian qualities of the zoo, in which “the hidden geographies of encounter” (2000, p. 284) require unpacking to reveal their complexities. Jones points to the individual animal, rather than the species, as an animal ‘out of place’, a transgressor, who becomes “ethically visible” (2000, p. 282) in the zoo. Other scholars have set themselves the task of reimagining the zoo, proposing ‘inside out’ spaces in an ‘inventionist’ project called ‘ooz’ (Acampora, 2010a, pp. 256-254). Acampora and others understand the post-humanism concept of a ‘more than human’ world to mean revisioning urban spaces to include multispecies neighborhoods, designed to encourage thriving of many kinds (Wolch, 1998; 2002; Acampora, 2004; Roberts and Prayoga, 2011). It is in Chrulew (2010) that there appears a vision of a transformation from the heterotopian ‘ark’, to zoos that are

“actively experimenting with different forms of engagement, inventing modes of interaction that are beneficial for both sides …environments in which animals can truly make their homes and at the same time serve as ‘social spaces’ for wildlife and human interaction. Zoos must become the vanguard in the creative design of ‘contact zones’ for the cohabitation of people and wildlife” (2010, p. 212, emphasis original).

This research aims to further the exploration of such spaces of situated, relational ethics: shared spaces of interaction. By problematizing the prevalent ‘moral presumption’ as a black box, and opening it for analysis, this research aims to develop a situated, contextual, and relational perspective of DAT and its transgressing, liminal dolphins, which can serve to bridge a conceptual gap in animal geographies and human-animal relations in general.
Spaces of Interaction: the Contact Zone

Haraway uses the ‘companionship’ of humans with other-animal species to explore natureculture (2003, 2008), seeking particularly to construct a relational paradigm that goes beyond simple relationship to actual biological entanglement. Some of her recent work (2008, 2010) describes territories of interdependent co-constitution. Adopted from scholarship on colonialism (e.g., Sundberg, 2006) by Haraway, the concept of ‘contact zones’, in her usage, describes much more than the haptic intimacies of touch. It refers to the broad range of interactions under the rubric of ‘bio-politics’, the ‘fleshy entanglements’ of “living and dying … killing and breeding” (Haraway, 2010, p. 55), the “contact zones of breeding, agriculture, sports, war, pet relations, pastoralism, technology, medicine, and science” (2010, p. 54). It also refers to “a historically located, multispecies, subject-shaping encounter … fraught with power, knowledge and technique, moral questions – and the chance for joint, cross-species invention that is simultaneously work and play” (Haraway, 2008, p. 205).

Her use of the word ‘companion’ does not denote a dog, for instance, as a ‘companion animal’ (2008, pp. 16-19). She points out that her meaning lies elsewhere, in the companionship of equals-at-table, not the same as each other, instead always different but tangled in each other’s lives in ‘contact zones’: “To knot companion and species together in encounter, in regard and respect, is to enter the world of becoming with…” (2008, p. 19).

Haraway draws upon Hearne (1987, 1995), whose background as an animal trainer informed her philosophical writings, to establish her views of companion animals’ “right and need to work and to be respected for their judgment and ability and therefore their entitlement to an education with real criteria and consequences” (Haraway, 2008, p. 344). Haraway also draws on Hearne when she describes ‘talent’, the “bringing out what is within…[m]uch of which can only come to fruition in the relational act of training” (Haraway, 2003, p. 52, emphasis original). Haraway also draws from Hearne (1991) in her argument that animal training is a significant part of these entangled spaces: “…happiness is fundamentally about an ethics committed to “getting it right,” to the satisfaction of achievement. A dog and handler discover happiness
together in the labor of training. That is an example of emergent naturecultures” (Haraway, 2003, p. 52).

The notion of the spaces of interspecies work in contact zones of close proximity is important for this research project. Despite Haraway’s (and Hearne’s) extensive writings about the variety of human-animal relationships, including working relationships that accomplish real-world tasks such as those done by dog-rescue teams, police horses, and elephant loggers, nowhere in either author’s publications does the work of interspecies therapy appear. This project seeks to develop an understanding of interspecies work in contact zones, the ‘simultaneous work and play’ of DAT with its mutual benefits, to help bridge the gap left by Haraway and Hearne.

**Spaces of Interaction: Psychological Spaces**

Vining’s research on the “development of caring, empathy, and … deep and abiding attraction to other species” (2003, p. 87) introduces the term ‘magic’ to describe DAT. She invokes this while reflecting on a lecture about a DAT program she attended: “at least some of the program’s success could be attributed to the magic of the human-animal bond” (Vining, 2003, p. 94). The word ‘magic’ is used by Vining to parallel the ‘peak experience’ described by Maslow (1964)

“…to refer to the sense that something very special and powerful has occurred, accompanied by emotions such as awe and wonder and by cognitive structures such as curiosity and interest … the experience of the union of self and other, individual and world” (Vining, 2003, p. 94).

Vining and Maslow are describing the collapse of spatial distinctions into a unitary and utopian experience of one’s world, an effect upon one’s spatial sense.

In Vining the dolphinarium environment becomes one where spaces of enhanced learning leading to wholeness is constructed:

“… there appears to be an argument that zoo and aquarium experiences, properly constructed, have the potential to enhance a sense of magic, or insights, empathy, and epiphanies … valuable, if not necessary, elements of human experience” (Vining, 2003, p. 95).

Vining’s statement is an acknowledgement that positive values are potentially to be found in the dolphinarium, where dolphins might ‘enhance necessary experiences’ for humans. This socio-spatial notion will be analysed in chapters 5, 6, and 7.
Other research on cetacean-human encounters describes peak experiences triggered by close proximity. De Mares and Krycka (1998) undertook a phenomenological study of “cetacean-triggered peak experience” (1998, p.175) and found that it “was prompted by close, often eye-to-eye, contact with cetaceans” (1998, p. 161). They argue that this kind of experience has much to do with proximity, the crossing of spatial boundaries into contact zones of utopian psychological intimacy: “the proximity to and engagement with the animal provides a window onto a world filled with harmony, unity, and grace” (1998, p. 166). As an influential scholar of Animal Studies says about the transformational power of eye-to-eye contact with animals: “…it is their eyes that pierce us” (Bekoff, 2003a, p. 934).

A key factor in the triggering of a peak experience with a cetacean is the closing of distance, the crossing into human space by an animal. Although a human may have predisposed their self to an experience by being present, it is the animal’s agency in crossing of the boundaries of personal space, its transgression of normative spatial constructs, that is the affective trigger (De Mares and Krycka, 1998, p. 168). De Mares and Krycka note that Maslow referred to peak experiences triggered by ‘thrilling to nature’ in a transformation of personal space as “a kind of self-recognition, a way of being at home, a kind of biological authenticity, of ‘biological mysticism’” (Maslow, 1970, pp. 321-322, in De Mares and Krycka, 1998, p. 176). This notion of transformative space that vivifies a sense of self-awareness, caused by close proximity to dolphins, as well as opposing arguments in the discourse of DAT, is explored in this research.

In a study on ‘interspecies etiquette’ and its affects on place and space, based on swimming with dolphins (Warkentin, 2011), the unit of analysis is ’ethical affordances’. These are described as “…opportunities for invitation, choice, reciprocity, and mutual interest…engaging dolphins and humans in ways that interest them both, such as through play” (2011, p. 105). In a spatially sensitive style of interaction, humans became intentionally vulnerable to afford dolphins opportunities to interact. This is conceived by Warkentin as “reciprocity for the privilege of seeing the dolphins by being visible and acoustically available to them” (2011, p. 117). The required kind of ‘bodily comportment’ is described as a “mode of approach [that] shapes the world…literally creating the settings in which new possibilities might
emerge” (Weston, 2009b, p. 95, cited in Warkentin, 2011), in other words, creating spaces of mutual encounter by transgressing normative constructs of ‘appropriate proximity’. This is accomplished by “attentiveness…a willingness and ability to make the space…in one’s own person… for the emergence of more-than-human others into relationship” (Weston, 2009, p. 95). Weston understands the notion of attending to both others and the self in psychological space as being essential for the opening of spaces of relationship.

For other scholars who assert that humans should “leave them alone” (Clement, 2003, p. 5; Bekoff, 2008b, p. 781; Bekoff, 2008c, p. 10), distance from dolphins, even those born in built environments, translates to the best form of relationship. Despite assertions about ‘leaving them alone’, Bekoff refers to the healing to be found in ‘nature’: “You are a wonderful teacher, a magical and often mysterious healer (2003a, p. 940)”’. Analysis of the contest between close encounters and the proximal knowledge to be gained, as opposed to an ethical stance against close proximity, is anticipated to help in understanding the contested spaces of DAT.

The Geo-ethical Spaces of DAT
Ethics has a key role in the theorizing of DAT, particularly (but not limited to) how it is constructed by oppositional arguments. Whether concerns for the suffering of dolphins, damage to species communities, the safety of dolphins and humans during its performance, or the health of dolphins and humans as a direct result of interaction, oppositional arguments of many critics center on ethical arguments. To enable a geographic understanding to be developed in this research, the literature on the socio-spatial aspects of encounters and the effects of ethical arguments on these are reviewed in the following section.

Ethics and Animal Protectionism
It is not possible within the limits of this thesis to fully review the literature of ethics and its relation to animal protectionism. Instead, a brief outline is presented, reviewing key texts that have shaped ethical aspects of animal geographies. Here I first provide a brief background review of three protectionist philosophies, then review literature from Animal Studies regarding ethical concepts and human-animal
relations, therapy, and specifically, the ethical questions raised by DAT. (The effects of protectionist discourse is explored in this research project as part of the Discourse Analysis in chapter 6.)

The ‘question of the animal’ is, to many, a question that begins and ends with their treatment by humans, that is, the ethics of relating (not disregarding ‘the question of the animal’ as discussed on page 13). Whether the focus is on animals in intensive farming systems, laboratories, wilderness, as pets, or the targets of hunting, or in zoos, circuses, or aquariums, the concerns for their right to life without suffering, as affected by humans, is the central concern of ‘protectionism’. Briefly, the three key ethical philosophies in the literature on protectionism (Kemmerer, 2006) are centered on welfare, rights, and/or liberation.

The literature on animal welfare is exemplified by that of the Royal Society for the Prevention of Cruelty to Animals (RSPCA, 2011), as well as that of Compassion in World Farming (CIWF, 2011) and other large animal-oriented organizations. Animal welfare is also the intent of most dog and cat shelter facilities. To generalize, its concerns are for the wellbeing, comfort, lack of suffering, and decent lives of individual animals. Although the RSPCA does have a ‘wildlife program’⁹, it is specifically for rescue, care and release of individual non-domesticated animals, and is not intended as a wildlife (species-wide) conservation program. Animal welfare concerns, closely defined, do not extend to species, habitats, or conservation in general.

Animal Rights is a philosophical concept originally put forward by Regan (1975, 1983, 2004) in a response to Singer (1975, see below). Regan [and many others] argues for the moral standing of all animals. The defining characteristic for this is determined by whether one is the “subject of a life” (Regan, 1983, p. 21), a term meant to describe beings whose lives matter to them. Any being who cares about having a life is, then, qualified for protection of that life. This leads to commitments, for some persons as part of their moral choices, to the ending of all agricultural systems that include animals for any reason, all experimentation on animals, all hunting, all uses of leather or other substances derived from animals (i.e., honey, milk, silk) – that is: veganism.
Animal liberation is the protectionist stance of the Australian philosopher Dr. Peter Singer (and an activist movement named as such), who argues from the philosophy of utilitarianism (Singer, 1975, 2006). His version of utilitarianism includes the idea that any creature that expresses a preference should be accorded its preferences to the degree possible. Since all creatures prefer to avoid pain, suffering becomes one of the standards by which the rights of an animal are to be considered. Singer considers the non-human animal to have a right to life that is equal to that of humans. Since there are some situations where the killing of an animal who is suffering is understood to fulfill the preference for non-suffering, this position justifies the killing of humans whose lives can be deemed to be endless suffering (e.g., babies born with incurable disabilities in the extreme). A mixture of Singer’s and Regan’s views have been used to support radical and extreme acts, such as the ‘emancipation’ of factory farm animals and laboratory animals (Liddick, 2006) and the killing of a dolphin in a marine mammal rescue facility (i.e, see Taylor, 2003, p. 317). The Liberationist ideology and the Rights agenda inform the activist practices of People for the Ethical Treatment of Animals (Newkirk, 1992; Liddick, 2006), for instance, despite its claims to being “the largest animal rights organization in the world” (PETA, 2013).

Contesting the practices of animal welfare organizations, some activist/scholars (Francione, 2010) within the liberationist position argue that any attempt to improve the humane treatment of animals, under any guise, perpetuates the concept of animals as property. This absolutist position extends the animal rights view, and is named by Francione “The Abolitionist Approach” (2010), which insists upon abolishing all animal ‘ownership’ and the universal adoption of veganism. Even this position is disputed by some scholar/advocates as not adequate to fully “accord any nonhuman being equal consideration and respect [such that] according equal moral value to nonhumans does require that comparable harm to humans and nonhumans carry equivalent penalty” (Dunayer, 2007, p. 27, citing Dunayer, 2004, p. 147, note 2, emphasis original).

In practice, Dunayer’s view is that neither welfare nor rights ideologies adequately address the need to hold humans to the same legal standards of responsibility when found guilty of harm to animals as they are when found guilty of harm to humans.
Debates, between Regan and Singer (Regan, 1980; Singer, 1984), and in academic and public communities, continue as to the proper ethical standards by which human-animal relations should be conducted (Friedland, 2004; Best, 2006; Kemmerer, 2006; Dunayer, 2007; Francione, 2010; De Fontenay, 2012). It is against these contested standards that many oppositional arguments measure the socio-spatial practices of DAT.

**Relational Ethical Frameworks**

Lesser known is the work of Evans (2005), a philosopher in the field of environmental ethics whose theory of “bio-centric anthropocentrism” (2005, pp. 129-142) has important socio-spatial implications. His theory supports a mutualistic understanding of human-animal interactions, one grounded in the relationality that is inherent in living as biological entities. He describes the community of life as “…a system of interdependence in which organisms, all organisms, live by making use of other things, generally other living things”(2005, pp. 102-103). Evans frames his theory in terms of respect for that interdependence, not as other theorists working on human-animal relations do (Taylor, 1981), who oddly insist on separating humans from nature, but in social-spatial terms of full engagement. He points out that “respect has to do with the way we as a species fit into the broader world in which we are inextricably interwoven” (Evans, 2005, p. 14). This means, in practice, that human needs exist as equal needs to those of other animals, including the use of other animals for various human purposes. As such, Evans makes an important contribution to understanding how a more nuanced socio-spatial philosophy connects humans and dolphins in the discourse and performance of DAT. It can serve as an ethical conceptualization supportive of (some) animal-human interactions that ‘use’ one another, appropriating the agencies, talents, and bodies of each other in the dynamic becomings of natureculture.

In addition, other relational frameworks have been proposed. Naess, whose Deep Ecology and Ecosophy have inspired a broad spectrum of the ‘environmental movement’ (Drengson, et al., 2011), outlined a spiritualized relationship-based philosophy that is “a vague abstract guideline that has to be embedded in a social (including economic) framework connecting philosophy with daily life” (Naess, 1979, p. 239). This is understood in various ways, and does not provide clear guidelines for
human animal relations, instead relying on “self realization” (1979, p. 231) of humans and the understanding that this status of enlightenment will lead to ecologically sustainable practices. Naess describes his ideas as a modus vivendi, a means to proceed despite disagreement, placing humans at the penultimate position in what he also describes as “species egalitarianism” (1979, p. 239). Although some have sought to codify this abstract philosophy, those who ascribe to Deep Ecology have not found a central and effective ‘relational ethic’ to espouse, leaving it as an interesting and inspiring concept without practical application (but see Seed, 2006; 1988).

An ethical framework developed more recently that is based in relational co-construction is that of Haraway (2003; 2008). In this framing, the question about how to go about ‘getting on together’ is answered by “emergent practices; i.e., in vulnerable, on-the-ground work that cobbles together non-harmonious agencies and ways of living that are accountable both to their disparate inherited histories and to their barely possible but absolutely necessary joint futures” (Haraway, 2003, p. 7).

Haraway’s framework denies the power of the “calculus of suffering” (2008, p. 298) found in the ethics of Regan and Singer to supply answers to the complexity of relational ethics. Instead she attempts to find a way to accommodate “finite truths [that] must cohabit well without final peace” (2008, p. 299), which is not dis-similar to the modus vivendi of Naess. Haraway’s ethics is strongly relational and more practically applicable in that it invokes the capacity to respond, or as she puts it “response-ability” (2008, p. 89). It is in “practices and imaginative politics of the sort that rearticulates the relations of minds and bodies [such as that produced by] good animal trainers and environmental enrichment practitioners” (2008, p. 89) that accord with her ethical concepts. Haraway’s understandings are parallel to Evans’ framework, and further an ethical understanding in which “companion species” (2003) can, and do work together without ethically charged imbalances.

An ethical theory that is based on biological continuity is named “symphysis” (Acampora, 2006, p. 76), described as “the sense of sharing with somebody else a somaesthetic nexus experienced through a direct or systemic (inter)relationship” (2006, p. 76). The ethical claim made in Acampora’s framework is that symphysis, or “corporal compassion [is a] proto-ethical predisposition toward somatic/animalic ties
of conviviality” (2006, p. 94). The strict reasoning of Acampora’s construct is unbending toward situated realities, despite its attempt to be ‘convivial’. It leads to conclusions such as

“the zoological “garden” – despite or even through its peaceful park-like image – is predominantly an institution of power, the specific functions of which are to display and preserve its keep…the zoo may be considered an artificial space of enforced occupancy and demonstration, an island of constraint within the series of social(ising) establishments that Foucault termed “the carceral archipelago”” (2006, p. 108).

This effort to ground a relational ethic in bodies is led astray by limited conceptions of spaces and freedoms. By not taking into account the circumstances of animals who are rescued from deadly circumstances, returned to health, and found to be unable to survive outside of human care, or those who are born in built environments and necessarily cared for by zookeepers, the symphysis concept of an inclusive ‘animalic’ ethics remains underdeveloped, and as such is not useful for this research.

Another framework of ethics based on relationality is more successful in handling the complexities of situated and individual life narratives. Ruby’s animal advocacy is based on a carefully considered ‘theory of affect’ and its consequences (2011). Hers can be called an advocacy of love. Not sentimental, although emotions are embraced, it is an affective theory in a “sacrificial register” (2011, p. 200) in which care for individuals arises from the mutual recognition of the sacrifices necessary for all relationships. The acknowledgement and embrace of this awareness, in Ruby’s conception of “loving animals” (2011), in which love goes both ways, is intended to step outside the constructs in animal advocacy that wrestle with “constructions of subjectivity…into a territory where we connect with animals at very corporeal levels, and then to make ethical decisions from inside that connection” (2011, p. 202).

Ruby’s theory depends on narratives, the grammar of relationship and its telling in and through bodies. The theory of affect, “circuits of exchange [or a] politicized concept of love” (2011, p. 193), taken into contemporary understandings of the era of ecological crisis into which the world has entered, leads Ruby to conclude that

“[t]o keep charismatic megafauna on the planet with us, we need to learn about them, to feed and care for them, tame them, keep them safe, make them happy,
teach them how to be in relationship with us, and, most important, see them clearly with our hearts” (Ruby, 2011, p. 152).

These relational ethics have similar aspects in that they (mostly) do not rely on abstractions, but instead attempt to place ethical value in living, experiencing bodies. It is to Evans’ work that this research turns primarily, not because the others do not offer support for understanding DAT’s contested spaces, but because it is sufficiently broad while being practically applicable. Each of the other relational ethics frameworks could be used to aid in understandings, each with their own limitations.

**Geo-Ethics and Protectionism**

Geography and ethics are closely related in the context of human-dolphin spaces. How humans relate, and ought to relate, to the world and the living beings in the world (human and non-human) has been at the heart of the study of ethical behavior since the earliest days of philosophical enquiry. As the geographer Lynn points out “…moral queries about the natural world (including animals) did not somehow infiltrate geography, but have been here all along” (1998b, p. 225). Geo-ethics is one of the names for the geographic, situated, contextual ethics developed by Lynn (1998b, 1999, 2005), as well as “geocentrism” (1998b, p. 231). He also calls it “Practical Ethics” (2007), to denote his construction of a non-abstract, applicable ethical theory. Representative of his geo-centric ideas, relative to human-animal ethical challenges, is his outline of how to respond to “hard cases” (Lynn, 1998, p. 291):

“When faced with a situation pitting humans against animals, first solve the underlying problem, then look for alternatives, and as a last resort, chose [sic] a geographic compromise that protects the entire community’s well-being” (Lynn, 2007).

This practical approach frames his work with wolves and wolf eradication efforts (Lynn, 1998b, 2002, 2010a). After confronting the ‘hard case’ of longstanding social constructions of the dangers of wolves to humans, and failed attempts to educate ranchers who have lost livestock to wolves and want to shoot them, Lynn advocates a ‘last resort’ option, which is to trap and remove an entire local population of wolves to another geographic situation (2002). In practical terms for dolphins, this can work well in circumstances when dolphins are found stranded, near-death, and suitable for
rehabilitation and long-term care. Although the underlying problem is unknown, because research into, and debates about, causation for cetacean stranding continue, with no definitive understandings (Jepson and Deaville, 2008; Parsons et al., 2008; Mann et al., 2010), relocating dolphins into built environments can be understood as ‘protecting a community’s well-being’. This ‘hard case’ demonstrates the practical, compassionate, and ethical value of such a situated, relational solution.

Lynn addresses a key issue in human-animal relations when he says

“… geocentrism regards all animals (including humans) as ends in themselves, as well as a means to other ends; we are variable mixtures of both intrinsic and extrinsic values” (1998a, p. 288).

Much of the discourse within animal protectionist ethics focuses on the intrinsic value of animals, and how poorly humans have related to this (i.e., Regan, 1983; Jamieson, 2002b; Regan, 2004; Francione, 2010). Here Lynn makes the case that their extrinsic value, their value for others, is of equal importance when seeking understanding of the ethics of human-animal relations. In geographic terms, Lynn argues that: “In geocentrism, the maps of the moral and geographic communities are isomorphic at whatever scale of analysis we choose” (1998a, p. 288). In other words, individuals, species, and habitats have equal moral standing. The ‘choosing of a scale’ implies not a broad nomothetic ethics founded on abstractions, but instead a situated, geospatially informed ethics that pays close attention to place for its response to an ethical dilemma. As Lynn says, “All human activity, including moral conflict, occurs at sites embedded in situations” (1998a, p. 283). However, problems remain in this theory. In an article on Lynn’s online publication, a blog formerly entitled ‘Practical Ethics’, he and another author state their understanding of

“… the facts: It is not appropriate or wise to keep dolphins and whales for our pleasure. It deprives them of their physical, psychological and social needs and desires. We have witnessed the pain, distress and tragedy that captivity produces—for them and for us” (Lynn and Stewart, 2010).

At the scale of individual animals who have become long-term inhabitants of the built environment, animals in enclosures who cannot survive otherwise, the ‘practical ethics’ reflected in these statements calls for further development.
Lynn’s ‘Practical Ethics’ (2007) has been used as the basis for a study in animal geographies that, in some ways, parallels this research project. Stewart’s doctoral dissertation (2006) describes an investigation into swim-with-dolphins spaces, using three case studies to develop a normative ‘practical ethic’ for human-dolphin encounters. Stewart’s treatment of relationality is problematic. It identifies “an interrelational perspective” (2006, p. 60) as a relational ontology, but does not overcome an objectivist separation between nature, society and individual entities. Stewart’s research does not adequately theorise the socio-spatial relationality of interspecies encounters. Stewart misreads Whatmore (2002), suggesting that the notion of hybridity is meant to “imply a combination or a blend” (Stewart, 2006, p. 90, footnote 82), a kind of relating between independent realities, rather than a reworking of understandings about the a priori inseparability of interspecies entanglements. As Whatmore puts it, “The concept of hybridity…seeks to implode the object/subject binary” (2002, p. 27). These confusions lead Stewart to an attempt to apply Lynn’s ethical ideas in ways that do not acknowledge the mutualism inherent in the dolphin-human encounters she studied. Drawing heavily on Lynn’s ‘Practical Ethics’, Stewart concludes her dissertation by ignoring its attempts to be responsive to both intrinsic and extrinsic values. This leads her to describe an imaginary future in which humans and dolphins no longer are in close relationships, their value to each other erased as enclosures are shut down and humans no longer offer or provide care for dolphins (see Stewart, 2006, pp. 249-252).

The lack of clarity in Stewart, grounded as it is in Lynn’s ‘Practical Ethics’, highlights gaps in geo-ethical theory. The socio-spatial connections and divisions that result from arguments in support of and in opposition to DAT in the light of geo-ethical, ‘practical ethics’, will be addressed in chapter 8.

**Spatializing Ethics and Animal-Assisted Therapy**

The literature on human-animal therapies is extensive (e.g., Fine, 2010), however, no research on the geographies of human-animal therapies has been published. Socio-spatial constructions of cetaceans in the growing field of Animal Studies (Shapiro and DeMello, 2010) tend to conceptualize them within ethical frames, as either an idealized ‘free-ranging’ animal (e.g., Clayton, 1998; Jarvis, 2000; Smolker, 2001; Cloke and Perkins, 2005; Stewart, 2006), or as prisoners, slaves, and abused ‘persons’
yearning to be free from a dystopian reality (e.g., Stewart, 2006; White, 2007; Butler-Stroud et al., 2010). In non-academic literature, cetaceans serve in imaginations of many kinds:

“...cetacean iconographies mirror the contradictions of contemporary culture...bodies of dolphins and whales seem to be perfect screens for projections of ambivalent desires to reinvent nature...or conversely, to reconstruct it as divine other beyond human intervention” (Bryld and Lykke, 1999).

While Bryld and Lykke analyze dolphins as New Age “shamans and healers” (1999, p. 169) without ethical comment, other scholars find the New Age mythologizing of dolphins to lead to dangerous and unethical practices (Marino, 2011, 2013), using this finding as a warning against participation in dolphin therapies.

Concerned with well-being (for non-human animals), arguments in opposition to working with animals in therapy programs are mostly framed in spatial terms. For instance, Zamir (2006) addresses the protectionist concerns for the morality of Animal-Assisted Therapy (AAT) by listing the various ways in which AAT is “[f]or liberationists...potentially immoral” (2006, p. 181):

1. Limitations of Freedom i.e., to be kept as pets are kept.
2. Life Determination, i.e., making totalizing choices for animals about where and how and if they are to live
3. Training, i.e, violations of well-being to enforce desired behaviours by control of movement and action
4. Social Disconnection, i.e., removal from kin
5. Injury, i.e., the likelihood of rough treatment by human patients in unfamiliar places
6. Instrumentalization, i.e., using an animal for human purposes in closer proximity than would be afforded by ‘freedom’ (after Zamir, 2006, pp. 181-182).

Zamir condemns these six potential forms of immoral use, characterizing them as abuse. Each of these six immoral ways of interacting with animals can be understood as human effects on the spatial aspects on animal’s lives. Zamir accepts that “animals may be used but may not be exploited” (2006, p. 189), and argues that
“Applied to AAT, this means that service dogs are used, though not exploited, since their welfare is promoted by the relationship … The same cannot be said for … aquarium-kept dolphins … who gain little or nothing through AAT and lose a lot … AAT that uses these creatures is exploitative, even if no abuse takes place” (2006, p. 189).

Zamir qualifies this in a footnote, saying

“It was pointed out to me that in some dolphin-related AAT programs the dolphins are actually free and the therapeutic objectives are obtained without moving the dolphins from their natural habitat and without coercion. My remarks throughout this essay regarding dolphins do not apply to such programs” (2006, p. 198, footnote 17).

Zamir’s thoughts regarding exploitation, abuse, and the potential for immorality in AAT illustrate the degree to which information about the spaces and practices of DAT is missing in public and academic discourse. His assumptions are only partly corrected by his informant and do not address the nuanced, varied, and situated actuality of the circumstances that prevail for many individual dolphins at the many sites of the performance of DAT. In effect, Zamir regards degrees of proximity as a key determinant in his construction of ‘immorality’, and does not consider the role of mutualism in its practices.

An Ethic of Care and Mutualism

It is to another gap in animal geographies literature this review now turns, one that centres on caring and relationality, which is best described as mutualism. First, however, a brief background review of the ethic of care will provide a basis for a review of literature that brings mutualism into focus.

Development of an ethic of care arose in feminist theory in the 1980s (for this history, see Donovan and Adams, 2007). An important distinction between this and other ethical theories is that it cannot be theorized or practiced in the abstract, and “begins with a social ontology of connection: foregrounding social relationships of mutuality and trust [and is] responsive and responsible” (Lawson, 2007, p. 3). An ethic of care in relation to animals, as conceived by Donovan and Adams, “goes beyond
compassion to include caring enough to find out who [or what] is causing the harm and stopping it” (2007, p. 14). A caring ethic is concerned with more than animal issues. It originated with a seminal work by Gilligan (1982), in which “the activity of care [is based on] fairness [rather than] right and rules” (1982, p. 19). This is described by Tronto as “activity that includes everything that we do to maintain, continue, and repair our ‘world’ so that we can live in it as well as possible” (1993, p. 109), and is based on feminist notions of situated relationships. Being situated is a socio-spatial concept, taking into one’s considerations for whom or what to care, and that places, circumstances, and relations can shift priorities. In regard to the inextricably situated nature of human-animal caring, “to be a situated human being is to be shaped by and with animal familiars” (Haraway, 2008, p. 47). Historically, familiars were “skillful and respected co-workers, [who] extend human senses and human powers”, as described by Plumwood (2002, p. 162), and are now “an animal with whom we can form some kind of communicative bond, friendship, protective relationship, companionship, or acquaintance” (2002, p. 165). In Plumwoods naming, familiar animals are ‘Earth others’, with whom a mutualistic ethic of care is the *sine qua non* of correct relations with the living environment (1993, p. 137).

Lawson’s Presidential Address to the Association of American Geographers called for an ethics of care, understood as a taking up of responsibility for others, including “care for both humans and the nonhuman, including animals and the environment” (2007, p. 6). This translates theory into practices in actual spaces, spaces of species’ meetings (Haraway, 2008), where caring reflects “spatially extensive connections of interdependence and mutuality” (Lawson, 2007, p. 8).

Caring is one among many theorised approaches to human-animal relations (Plumwood, 1993). Caring can be understood by the term ‘mutualism’. This term is borrowed from several disciplines and discourses, and was first used by the geographer Kropotkin to describe a new conception of interactive and mutually beneficial activities between animals that he called ‘Mutual Aid’ (1902). This had been observed in his research among “colonies of rodents; in the migrations of birds… and especially in a migration of fallow-deer” (1902, p. 2). The term was taken from ideas about social and economic organization developed in the early 1800s that were anti-capitalist and anarchist/socialist in which sharing of resources was
prominent (Woodcock, 1956). Kropotkin, a Russian geographer and philosopher, adopted the idea of mutualism in an effort to counter the influential evolutionist Thomas H. Huxley’s treatise about competition as the predominant interaction in the natural world (Huxley, 1888). Kropotkin’s “Mutual Aid, a factor in evolution” (1902), describes cooperation as a fundamentally important transaction in the natural world, in the lives of both non-human and human animals. Describing the difference between his and Huxley’s view, Kropotkin wrote:

“There is an immense amount of warfare and extermination going on amidst various species [but] there is, at the same time, as much, or perhaps even more, of mutual support, mutual aid, and mutual defence amidst animals belonging to the same species or, at least, to the same society. Sociability is as much a law of nature as mutual struggle” (1902, p. 9).

Kropotkin’s ideas about mutualism have left a legacy in economics, social and political theories, and in life sciences is a term still in use, growing into new meanings about interspecies relations, especially in conservation biology (Bronstein et al., 2004; Smith et al., 2009), behavioral studies (Balcombe, 2009; Dudzinski et al., 2010), psychology (Odendaal, 2000), and environmental ethics (Weston, 2009a). Mutualism is now defined several ways that are directly applicable to the dolphin-human connection as well as other human-animal entanglements. Various notions of mutualistic relationships are described, e.g., from a psychological study on animal-assisted therapy: “a social symbiotic relationship (mutualism on a social level)” (Odendaal, 2000, p. 276); from a systems theory study of conservation: “the degree of specificity is not necessarily symmetrical within a mutualism” (Bronstein et al., 2004, p. 2). Mutualism need not be limited to single interactions that are equal in benefit, i.e., many humans can be assisted by a single dolphin, different dolphins can assist one human, or one dolphin can gain benefit by interacting with various humans.

A Synthesis of Literature

The concepts reviewed in this chapter have emerged from animal geographies and related scholarship and together help elucidate key socio-spatial considerations in the discourse and practice of DAT. The socio-spatial concepts of proximity, transgression, spaces of interaction, and geo-ethics will be used to frame an
exploration of the contested constructions of DAT and the various arguments in support of and oppositional to DAT. These will also be used to aid in developing an understanding of the various representations of ‘the liminal dolphin’ and its role in DAT, while an ethic of care and the concept of mutualism will help to unravel how DAT is experienced within and beyond its community of practice.
Chapter Three: Research Paradigm and Strategy

This chapter describes the theoretical framework within which the research was undertaken and the research strategies that frame the processes by which the research was achieved. It describes the two levels of core understandings, the ontological and the strategic concepts, that inform the choice of methodologies and methods by which this research seeks to describe and understand the contested spaces of dolphin-assisted therapies.

The chapter begins by situating its development of understandings within a research paradigm that is responsive to the complexities inherent in socio-spatial analysis. A research strategy includes the rationale for both the analytical means for constructing categories of findings (methodology) and for the choice of specific techniques (methods) used to gather the data from which knowledge is constructed (Yin, 1981). The final section is an explanation of the research strategies used, by which the methodological choices were made.

The Research Setting

This research seeks understanding as part of a new academic sub-discipline, animal geographies, in which human-animal difference is a central problem (Wolch and Emel, 1998a; Philo and Wilbert, 2000). It does so by analysing a socio-spatial phenomenon that is fraught with tensions, ideological passions, and where a spiralling range of concerns centres upon interactions between three key actants: dolphins, humans, and humans with disabilities. This research does not investigate the efficacy of Dolphin-Assisted Therapy, nor does it attempt to justify or critique its varied practices. It accepts, as given, the premise that Dolphin-Assisted Therapy is represented in an existent discourse in various fora, including academic, activist, and public ‘mainstream’ media, and that this discourse is unsettled in its claims, with contesting views across a spectrum of ideological perspectives. This research
intersects with this broad discourse, interrogating its many perspectives as a single unit of analysis, with the aim of developing a more nuanced understanding of DAT and how this discourse is situated within animal geographies. Unpacking the dynamics of difference across many ontological and epistemological borders requires both a suitably responsive theoretical paradigm and a flexible and multi-faceted research strategy.

Philosophical Paradigm

Discussion of the philosophical basis of one’s research is not a straightforward task. It is an aspect of research that is fraught with differing definitions and approaches (Crotty, 1998, p.1; Walter, 2006, p. 18). To address the varied scales of transactions and relationships in DAT, and to understand the unsettled and contested (and sometimes subtly differentiated) qualities involved, a flexible, powerful, and carefully defined paradigm is employed.

Following Cresswell (2009), the paradigm adopted for this research draws upon two relatively new developments in theory to add sensitivity, breadth, and depth to its constructivist framework: non-representational theory and Actor-Network Theory. In this research these theories, the first a theory for embracing a wider range of factors in socio-spatial dynamics, as developed by the theory’s originator, Nigel Thrift (2008), and the second, ANT, a “theory of a space” (Latour, 1999, p. 3) ‘sits beside’ a relational ontology of becoming (see below).

Evidence of the conflicting ideas that discussion of ontology and epistemology is fraught with is to be found in the widely cited work of Guba and Lincoln (2005). There, a ‘belief’ precedes ontological paradigms, from which epistemologies are derived, which is not how others, such as Crotty (1998, pp. 8-10), Gray (2009, pp. 16-17) and Woodard and Jones (2009, pp. 512-513) describe ontology. In these latter sources, ontology is either an outcome of epistemology, or sits ‘beside’ it. For Guba and Lincoln, beliefs include positivism, postpositivism, critical theories, constructivism and participatory philosophies. Each of these beliefs is shown (Guba and Lincoln, 2005, p. 195 Table 8.3) to have an associated ontology, epistemology, methodology and so on.
In Guba and Lincoln’s framing the epistemology of constructivism is said to utilise an ontology of “relativism – local and specific co-constructed realities [and an epistemology that is] Transactional/Subjectivist”. (Guba and Lincoln, 2005, p. 195). Nowhere in their discussion of ‘new paradigms’ is there mention of a relational ontology of becoming. For this research Constructivism is understood to be an epistemology that sits beside an ontology that is one of becoming, and is relational. Barad explains it:

“The separation of epistemology from ontology is a reverberation of a metaphysics that assumes an inherent difference between human and nonhuman, subject and object, mind and body, matter and discourse. Onto-epistemology – the study of practices of knowing in being – is probably a better way to think about the kind of understandings that are needed to come to terms with how specific intra-actions matter” (2003, p. 829)

The relational constructivist worldview held by this researcher for this project is more fully described in the following sections.

**Becoming: A Relational Onto-Epistemology**

“‘Becoming’ suggests change and mutability, but also movement that ruptures, decomposes and recomposes. ‘Becoming’ invokes temporality, but its space is one of betweenness” (Katz, 2009, p. 467).

To seek understandings of spaces resulting from, and in which, ontological conflicts, epistemological differences, and the dissolution of socio-natural boundaries are central requires a theoretical framework commensurate with the task. What is required is a relational paradigm that fits well with the inherently entangled realities of humans and other animals, and with many ways by which they are understood. This describes the matrix within which this research takes place. This research adopts a view of reality that is not one of being, but rather one in which reality is understood to be a dynamic, fluid, and unsettled process of becoming. This enables the researcher to better attend to the mutable and emerging factors inherent in relational realities in the entanglements of individuals of all species.

Many scholars have developed a relational ‘ontology of becoming’. In the 20th century theorists from Bergson (1911) to Whitehead (1929), and more recently
Lefebvre (1974), De Certeau (1981), and Rose (1999) have developed it, and Thrift (2008) continues its development in his ‘non-representational theory’. This is a theory adopted by Human Geographers that “involves an attempt to rethink our most basic ontology as a means of coping with an always becoming world of contingency, change and emergence” (Gregory, 2009, p. 587). Some scholars have convincingly described a relational ontology as a hybrid in which social and natural categories are inseparable (Murdoch, 1997a; Whatmore, 1999; 2002b; Castree, 2005; Latour, 2005; Law, 2007). This relatively new theoretical stance draws on a conception of the world (the formerly so-called social and natural worlds) as “seamless … indissociable” (Castree, 2005, p. 223). In the work of Barad (2003; 2007), it leads to the coining of the term “onto-epistemology” (2003, p. 829), denoting the inseparability of becoming and knowing, which has been adopted for this research to describe its relational paradigm.

The paradigm used to conduct this research, however, presents certain difficulties: in adopting this onto-epistemological worldview it is acknowledged that understandings developed in this research can only be partial, a glimpse at socio-spatial phenomena that includes many changing and dynamic and only-partially-presentable elements.

Constructivism and Hybridity

Until recent years most geographic research has been situated in either a positivist/postpositivist paradigm or a social-constructivist paradigm (Cresswell, 2009, pp. 6-11). The positivist position posits an external reality consisting of a real world that can be observed, measured, and understood as it is, with discoverable meanings pre-existing their apprehension by a (human) mind, and from which positive assertions about its realities can be made with certainty. It has been the most widely used paradigm for Physical Geography. As Human Geography developed and began to become a separate field, it became evident that discoveries could not be asserted with certainty about the fluidity of social phenomena. A positivist Human Geography was deemed to be inadequate for a more complete understanding of how humans and the material world interact (Berger and Luckman, 1966). In response, in recent years the paradigm in which Human Geography has been (most often) situated is that of constructivism (Berger and Luckman, 1966; Guba and Lincoln, 2005;
Cresswell, 2009, p. 8). This paradigm also recognises the actuality of an external world, but sees it as apprehended and perceived by the human mind and that it is a world from which understanding (meaning) is constructed by processes of mental interpretation.

Constructivism regards knowledge to be ‘constructed’ by human minds, rather than discovered as something pre-existing the cognitive processes that develop it (Greenough, 2009, p. 205). It is understood by constructivism that humans ‘construct’ notions of the world and its meanings as re-presentations. As such, re-presentations designate a binary, that of the presented and that of the re-presented. One side of the binary is conceived of as external to the perceiver and natural (that is, pre-existing the act of re-presentation), the other made of constructed representations, or symbolic understandings. This leads to a “binary mode of thinking that sets up an opposition between ‘the natural’ and ‘the social’ as the absolute and only possibilities in a purified world of black and white” (Whatmore, 1999, p. 24). To overcome this binary onto-epistemological challenge, geographic theory has been renewed by ‘hybrid’ or relational theory through the work of Thrift (1996, 2008, 2009), Whatmore (1999; 2002b; 2006), Haraway (2003, 2008) and others. Hybridity does not mean “conceiving every hybrid as a mixture of two pure forms” (Latour, 1993, p. 78). Instead, removing any reference to separation, this hybrid relational onto-epistemology refers not to a mixture of nature and culture, for instance, but instead understands it as “natureculture” (see Haraway and Goodeve, 2000). This research is undertaken as part of the more-than-human scholarship of animal geographies, where the concept of natureculture is often employed as part of the relational (hybrid) onto-epistemology which describes the entanglement of species that co-construct spaces (Wolch and Emel, 1998a; Whatmore and Thorne, 2000; Whatmore, 2002b; 2006; Haraway, 2008).

Relational theorists retain the notion of constructions in their view of things: “the reality of things is always constructed in their relations” (Law, 2004, p. 3). While ‘the reality of things’ can be understood by their relations, how these relations are encountered, engaged with, and taken into one’s perspective is not always by means of cognitive processing or dependent upon linguistic competence, which are both central to the representational process of constructivism, as inferred by some social
philosophers (see, for instance, theories of Piaget and Rorty, in Glaserfeld, 1996). For these constructivists “knowledge refers to conceptual structures … of thought and language, [which] epistemic agents consider viable” (Glaserfeld, 1996, p. 4). As such, constructivism with some modifications will be a particularly useful paradigm for interpreting the theories, practices, experiences and contested status of DAT.

Representational Social Constructivism and Beyond
The revelation that arose when feminism, colonialism, and racism came under intense study in the 1960s, revealing that each was dependent upon understandings of the ‘constructed’ quality of their central problems (Taussig, 1993, p. xvi, in Anderson and Harrison, 2010, p. 4), led to the paradigmatic shift to notions of constructivism. Constructivism was later modified to include the idea that social contexts underlie constructions by individual minds (Barnes, 2009, p. 690), leading to the term ‘social constructivism’ (Berger and Luckman, 1966). However, “…the primary ontological object of social constructivism is the collective symbolic order [which]… is that by which its members make sense of the world and within which they organise their experience and justify their actions” (Harrison and Anderson, 2010, p. 4).

The ‘ontological object’, or presentation, became understood as collectively (socially) constructed, as a representation.

A representational social constructivism is the epistemological paradigm that is most often invoked in the research projects of Human Geography (as it is here, with some critical modifications as described). It resists the positivist assertion of a world knowable by observation and measurement. Instead, it claims that understandings are assembled by cognitive processes that construct meaning “in ways that the person thinks is most fitting” (Castree, 2005, p. 124). This broadly accepted paradigm is troubled by recent scholarship (Johnston, 2008), however. Its dependence on cognitive processes mostly ignores affect. It is based on a binary representation of human experience, one that sets aside one of its binary positions, that of the non-physically-measureable elements of experience, often characterised as ‘irrational’ or based on ‘feelings and intuitions’, as if these were not always and already constituent parts of all experience. As one scholar describes it, “The rational, mindful subject is

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defined in opposition to that which it is not: irrational, emotional, and bodily” (McCormack, 2009, vol. 8, p. 132). The recent development of emotional geographies is one of many responses to the dualism within social constructivism. It is “the study of the dynamic, recursive relation between emotions and place or space [that is,] ways of considering how emotions, along with linked modalities such as feeling, mood or affect, are constitutive elements within the ongoing composition of space–time” (Anderson, 2009b, p. 188).

Emotional, Feminist, and other geographies\textsuperscript{14} seek to overcome the Cartesian legacy of the separation of mind (cognition) from body (and its pre-cognitive perceptions). The notion of the ‘social’ in social constructivism is further problematized by those ‘epistemic agents’ with different cognitive capacities, or different language abilities (or no ‘language’ at all, such as some humans with disabilities, for instance) by whom knowledge is also gained, developed, and put to use, but who may have no direct cognitive or linguistic connection to a socializing framework (but see Davidson, 2009, who discusses the often strong emotional relations to their world, experienced and expressed by persons with autism). This points to the theoretical underpinning of non-representational theory, which is incorporated into the onto-epistemological paradigm of this research, and more fully explained below.

For this research project, where the spaces of encounters between differently configured animals (liminal dolphins, humans, and humans with varied capabilities) are central, and whose experiential realities must be understood as different (to varying degrees) from each other, an open paradigm, one that dissolves additional binary differences, has been utilised. Social constructivism remains, here, as the primary onto-epistemological paradigm, but has been found to be wanting, needing something more, something that removes the dependence upon (narrowly defined) human cognition\textsuperscript{15}. For this reason, a modified paradigm is adopted that does embrace the non-binary reality of experiential knowledge, that is, a non-representational theory (with yet another, slight, modification).

\textbf{(More Than) Non-representational Theory}

A defined non-representational theory has been under development since Thrift began to articulate it in the early 1990s (2008, p. viii). Neither an ontology nor an
epistemology, but an approach to reality and how it is understood that does not separate cognitive and non-cognitive experience (which is a hallmark of epistemologies from positivism to constructivism), it seeks “new capacities to empower [researchers]” (2008, p. ix). It does this by inclusion of extra-cognitive experience, those influences human bodies and minds are affected by prior to awareness of them (see below). Thrift also recognises the importance for researchers of ‘practices’, which are “bodies of work or styles that have gained stability [yet] are continually being rewritten” (Thrift, 2008, p. 8), which are central to this research project (see below). Thrift traces aspects of non-representational theories to other theorists, from Husserl, Bergson, Wittgenstein and Heidegger to Foucault, Giddens, Latour and Haraway, and others (Thrift, 1999) and he has brought together a unique but unfortunately named addition to geographical thought. Lorimer suggests in the interest of clarification that this be thought of as a “more-than-representational theory” (2005, p. 84) [hereafter, MTRT]. While representation itself is not denied its role in human understanding, in Thrift’s theory the ways in which affects are set in motion in the day-to-day inter-relating that constitutes socio-spatial experience, more than cognition and its products – representations – are in play.

Because MTRT affords opportunities to consider the subtleties of the sometimes brief, unmeasured-or-recognised moments taking place in DAT, when the boundary between water and air is trespassed by humans and dolphins, when haptic contact may serve as an extraordinary instant that changes a mind, a family, a community of humans, something more than mere cognitively-based representation of these moments is required. Thus, an escape from re-presentation’s positivist heritage, and the inevitable torque placed on meanings by being part of binary reality, can be found in a relational onto-epistemology of shared experience. MTRT becomes a powerful theoretical modification to social constructivism for this research, a theory that helps to answer sub-questions regarding the affective power of DAT and its varied and contested practices.

**Affect and its Spatial Effects**

Geography studies spaces. In this research, spaces are not understood to be entirely physical. Some spaces are affective zones where experiential moments occur. In DAT affects are key to understanding its subtleties. Affects, that is “rolling mass[es] of
nerve volleys [which] prepare the body for action in such a way that intentions or decisions are made before the conscious self is even aware of them” (Thrift, 2008, p. 7), are embraced by MTRT. Affect has been distinguished from emotion and feeling by some scholars: “[affects are] unformed and unstructured intensities …where emotion is understood as the socio-linguistic fixing of intensity” (Anderson, 2009a, p. 8). These are related such that emotions are “…tangible manifestations of affect… the most intense capture of affect in communicable and expressive terms” (Dewsbury, 2009, vol. 1, p. 23). Affects are

“… an experiential force…that exists as a relational experience … as such it is a state of becoming, given that it prestructures codified emotional responses to physical experiences…at the edge of becoming in a becoming world…” (Dewsbury, 2009, vol. 1, p. 20).

The notion of affect and its ‘intangible and intense’ qualities is important for interpreting this research. It opens the possibility of understandings and meanings to be found in the liminal and contested spaces of intimate contact where haptic (and affective) processes are a central part of the therapeutic encounter. MTRT offers a glimpse into those spaces. Thrift describes affect’s role in the more-than-human world as

“…moments of relation…flows…making their ways across fields of flesh [that] involve more and more actors – various kinds of things, various other biological beings…in a continuous undertow of matterings that cannot be reduced to simple transactions…” (Thrift, 2008, p. x).

In addition, more than the intimate, family, or social exchanges in which affect plays a role is, by necessity, paid attention to in this research. The affective power by which academic and activist texts influence the social matrix of beliefs and attitudes about DAT may play an important role in the DAT discourse as well, producing spatial effects of oppositions, connections, and divisions. For all of these reasons, as this research seeks to develop understandings of theoretical, practical, experiential, and controversial aspects of Dolphin-Assisted Therapy a more-than-representational social constructivist onto-epistemology is taken as the most appropriate paradigm to achieve its aims.
This research philosophy, therefore, sits within the ‘affective turn’ in geography (Clough and Halley, 2007; Thrift, 2008), a recent turn toward affect as an integral, spatially effective, and poorly researched, aspect of natureculture.

**Actor-Network Theory and Affect**

Related to MTRT, Actor-Network Theory has been called one of the theories that support an “associationalist geography” (Murdoch, 1997b, p. 322), a geographic knowledge domain that is founded on the networked (relational, more-than-representational, and therefore dynamically becoming) associations of actors. It is across an array of networking actants (entities, non-human as well as human, whose agency ‘acts’ in the networking of relations. See Latour and Callon, 1992; Law and Callon, 1997) that this research investigates, using the spatial complexities of DAT as its unit of analysis.

Actor-Network Theory (ANT) is a relational theoretical framework that has come into use in Geography during recent decades. It was developed by scholars working in the field of the sociology of science (Latour and Woolgar, 1979; Callon, 1986; Law, 1986), who found that scientific facts are the result of a process of actants working in relationship to each other and on each other, with no single actant necessarily privileged with more agency than any other. In this view, agency is the inherent power that lies within relations, power that can be understood as producing effects in flows of energies. It need not be intentional, brought into effect by conscious thought or even any consciousness at all. All actants have the potential for equal bearing on the construction of knowledge in an active networking process in ANT, where the relating that takes place in the network is the context and the substance of the outcome. ANT understands knowledge as a relational outcome. This is the theoretical basis for including biological, ethological and behavioural knowledge about dolphins on equal terms with the inclusion of knowledge about humans in this research.

Among the understandings of ANT is a boundary-less acceptance of the many kinds of agency that leave their traces in human knowledge. These traces are found in textual representations made by researchers, scholars, observers and others who have attempted to articulate understandings of DAT by means of text. In texts that draw upon ideas and observations of DAT are included the understandings about dolphins
that humans are developing, understood as unstable in this research. As such, understandings of places, spaces, humans and dolphins in relation to DAT are circulating and ‘intertextual’ (see Banting, 2010; Latour, 1999). The humans and the dolphins are “intercorporeal” and “intersubjective” (both from Dutton, 2012, p. 105) actants in the liminal status of DAT. The textual traces of their embodiment (Dutton, 2012), following the understandings of ANT, are meaningful because “social agents are never located in bodies and bodies alone, but rather…an actor is a patterned network of heterogeneous relations, or an effect produced by such a network” (Law, 1992, p. 3, in Taylor, 2012, p. 43). In ANT these heterogeneous actants are linked in processes of ‘networkings’, energetic circulations of powers that eventually settle into ‘knowledge’, or if unstable and unable to find stasis, do not.

Latour points out that ANT

“… is a theory that says that by following circulations we can get more than by defining entities, essences or provinces. ANT is not a theory of the social, it is a theory of a space in which the social has become a certain type of circulation” (1999, p. 3).

He is referring to the challenge faced by the social scientist when confronted by the ‘social’ in its ‘fleshy’ forms and the ‘social’ in its abstracted, theoretical form, and how ANT is an attempt to ‘follow the circulation’ between these two aspects of the social. ANT views both social aspects as of equal value in developing understanding.

The pre-cognitive factors of affect are not (usually) directly referred to in ANT, however ANT’s unlimited concept of agentic potentials is substantially identical to non-representational theory’s concept of affect. ANT has been called “a theory of agency” (Law, 1992, p. 389), and Thrift’s version of non-representational theory could well be called ‘a theory of affect’, where “affect should be seen as something more nearly akin to a major natural force which we cannot sidestep” (Thrift, 2003, p. 2020). It is to affect and its related concept, agency, that this research turns, seeking to describe and understand the influences felt by therapists, activists, families, trainers and others in the therapies in which dolphins have been enrolled. Subtle, explicit, abstract, and physical, the pervasive presence of dolphins, with their ancient history of affective relationship with humans (Montagu and Lilly, 1963; Taylor, 2003) has effects in the many spaces in which therapy occurs. These effects have spatial
consequences, forming oppositional divisions and supportive connections in academic, activist, and public practices. These relationships and interactions, spaces and consequences, will be interpreted through the theoretical lenses of MTRT and ANT, and framed by a social constructivist onto-epistemology.

Space – The Unit of Analysis
This research takes as its unit of analysis the contested spaces of Dolphin-Assisted Therapy. A description of spaces as ‘contested’ is founded on the notion that within a relational onto-epistemology, spaces are the sites of relations, which are of many possibilities, including being oppositional, that is, contested.

One of the key concepts of Geography (Kitchin, 2009, p. 268), space has been conceived of in many ways. This research adopts a definition of space influenced by Lefebvre (1974) who said that “real space …is the space of social practice” (Lefebvre, 1974, p. 14), taking space to be other than simply a container inside of which things are distributed. Instead, space is understood here to be ‘relational space’ and that cognitive space is of equal concern to that of other kinds of spaces. This conception of space understands space to be in the process of becoming, “a material and social reality forever (re)created in the moment. Here, space gains its form, function, and meaning through ‘practice’” (Kitchin, 2009, p. 272). Space, then, is “brought into being through performativity -- the unfolding actions of people” (Rose, 1999, p. 248, in Kitchin, 2009, p. 273). Space, being continuously created by people (and other actors), is not fixed, and what affects its performative expression is not always knowable, or re-presentable. However, by being sensitive to the theoretical underpinning of MTRT and ANT, and their means for producing knowledge, this research describes and bears witness to the affects and actants that produce the contested spaces of dolphin-assisted therapies. As Thrift says, “Space is not just a series of interdigitated worlds touching each other. It is constructed out of a spatial swirl of affects that are often difficult to tie down but are nevertheless crucial” (Thrift, 2006, p. 143).

The ‘spatial swirl of affects’ is an apt term for describing the notion of relational space (Malpas, 2012) adopted by this research as it performs its production of
knowledge around the kind of ‘spacing’ evident in DAT and gives location to a new understanding of liminal human/animal becomings.

Space, Performativity, and Practices
Because this research uses a more-than-representational, social constructivist ontological-epistemological theoretic framework, and being sensitive to the concepts of extensive agency across domains as suggested by ANT, an uneasy situation seems to arise: the challenge of how to locate and identify spaces identifiable as ‘contested’, and how to bring these spaces into an analytical process. By understanding spaces as results of, enactments of, and as being in relationship to, speech and/or text, and/or other affectively sensitive means, the discursive and productive elements of space become evident.

Performativity is a concept originating in linguistics that recognises how words enact what they are saying in the act of saying them in such declarative statements as “I pronounce you husband and wife” (Pratt, 2009, p. 526). Butler’s development of this concept, used to describe ways in which gender is a result of performative acts in speech and text (Butler, 1990) has been influential in Human Geography. As one commentator points out, performativity can be thought of in terms of space, as “spacing…[which is] differentiation” (McCormack, 2009, vol. 8, p. 135). Thus, it can be understood that the performative activity of differentiation produces space and its conditions (Lefebvre, 1974).

Performativity, when described as: “The quality of practices that means they are generative of the world rather than merely reflective” (McCormack, 2009, vol. 8, p. 133), helps this research to link performative acts (or ‘spacing’, a verb) to practices, which is where connections and divisions can be found in the discourse of dolphin-assisted therapies. Practices, as described by Thrift, are “…material bodies of work or styles that have gained enough stability over time, through, for example, the establishment of corporeal routines and specialized devices, to reproduce themselves… [and] if we are looking for something that approximates to a stable feature of a world that is continually…bringing forth hybrids, then I take practice to be it”(2008, p. 8).
It is for this reason that this project turns to an examination of the practices of DAT as performative acts of spacing, to seek understanding: to those discursive and/or embodied acts of families, therapists, trainers, managers, and developers of DAT, as well as activists and commentators, scholars and others.

Abductive Reasoning
Findings derived from qualitative data are not usually generalizable (Gray, 2009, p. 28). One cannot, for instance, derive conclusions about the discourse of therapeutic endeavor, which includes many discourses not included here, from an analysis of one discourse, that of DAT. Interpretation of performative acts and texts can, however, provide complex, context-based deep understanding of a limited focus of investigation (Crotty, 1998, p. 68), and can be extended toward understanding of other related phenomenon. Single instances of a phenomenon can, for instance, enable falsification of a generalized ‘fact’, if it can be shown that it substantially counters a proposed universal condition (Popper, 1968).

The kind of reasoning used in this research is abductive reasoning. This research is not the testing of theory by experiment, nor is it seeking to discover generalizable facts. It utilises a process for gaining understanding by “reasoning toward meaning” (Shank, 2008), that is, by seeking “a plausible interpretation” (Schwandt, 2007a) from observable effects to possible causes which cannot be observed (Castree, 2005 Box 4.6, p. 216). Abduction is a kind of reasoning that develops explanations for complex processes and is applicable in social science research when multiple factors cause effects (Shank, 2008). This research seeks to develop plausible understandings from a complex array of spatial effects. The effects are drawn from sources across the discourse of one type of animal-assisted therapy: Dolphin-Assisted Therapy. These interpretations will help lead ‘toward understanding’ as referenced in the title of the project.

From Strategy to Methodical Research
The methods chosen for witnessing the contested spaces of Dolphin-Assisted Therapy must enable rich descriptions (Dewsbury, 2003). Methodologically, the associationalism of MTRT and ANT creates challenges. How does one locate data
when one’s theoretical basis insists upon the relational importance of, and non-
exclusionary embrace of, all things, animate and inanimate, intimate and global? These problems can be framed as an issue of scale, which is itself understood to be relational by some scholars (Latour, 1993; Massey, 1994; Whatmore, 2002b; Murdoch, 2006). ANT problematises this by positing a non-scalar conception of networked non-hierarchical actants, and MTRT further problematises this by asserting that what is ‘followed and witnessed’ must include the affective, or intangible and pre-cognitive. These assertions pose challenges to received methodological strategies.

ANT’s response to this challenge is to recognise that spatial qualities are the qualities of relations within networks, so analysis of networks, by following them wherever they lead will reveal how spaces are constructed (Murdoch, 1997b, p. 332). By ‘following the networks’ one is engaged in the primal activity of early Geography, “travelling from place to place” (Hartshorne, 1939, p. 15 in Casey, 2001, p. 690), witnessing landscapes, arrangements of artifacts, and styles of relationships of all kinds, which is what this research project requires. Data can be found that, when analyzed, becomes revelatory information, identifying related actants with more or with less affective power in the formation and sustaining of spatially distributed phenomena. These data can be found in textual representations, physical structures and their arrangements, as well as in personal accounts of experiences. This research into contested spaces requires a boundary-crossing method of investigation to acquire its data of inter-related actants from various disciplines, practices, and life experiences. MTRT responds to the inherent challenges in research on the ‘natureculture borderlands’ (Wolch and Emel, 1998a) by requiring of the researcher an open sensorium as a witness to both explicit and affective input on the relations that constitute the practices of the world. For a Human Geographer, it is the performance of spaces, places and environments that are central to understanding the relations constituting these socionatural constructs. In these ways, for instance, the ‘material semiotics’ of ANT (Law, 2007), as well as the openness of MTRT, helps in the describing of and witnessing of the ‘spacing’ of a constructed facility at the site where this research was (mostly) conducted.
Chapter Summary

The research strategy of this project has outlined and justified its choice of abductive reasoning within a social constructivist paradigm that is understood to derive from a relational onto-epistemology of becoming. It amends social constructivist ideas by including ‘more-than-representational’ and ‘actor-network’ theories, opening up the project to a more nuanced, relational, and hybrid view of the many elements that comprise the contested spaces under analysis.
Chapter Four: Methodologies and Methods

Two Methodologies, Multiple Methods

This chapter describes the process for data gathering and subsequent analysis using two methodologies for this project. Following the research strategy outlined in the previous chapter, a variety of methods are used to acquire data, crossing from discursive sources to sources where affect is investigated. This chapter begins with a description of the two methodologies employed for analysis, followed by detailed descriptions of the methods used for data acquisition.

Methodologies

This research project utilizes two primary methodologies for the analysis of data: Foucault-inspired discourse analysis (Jacobs, 2006, p. 142) and a case study. Qualitative thematic analysis and visual document analysis methods (Emmison and Smith, 2000; Rose, 2008) are embedded within these two primary methodologies (Yin, 2009, p. 63). Observational research (Agrosino, 2004) is a method also embedded within the case study, as suggested by Yin (2009, p. 99). Two forms of Foucault-inspired discourse analysis were used, a genealogical study and a more general discourse analysis, with both of these also drawing upon ANT. The case study of one site where DAT is practiced is viewed as an example of a relational network of spatial constructs where a sensitive witnessing of overt and subtle interactions, informed by observations and interviews supports construction of the study. At the beginning of this research, as data was being gathered, a ‘theming’ process was already underway based on prior knowledge (Braun and Clarke, 2006, pp. 86-87), later made more explicit by the use of computer software to aid in the creation of ‘coded’ extracts from both interviews and texts. These coded extracts served as a general database from which to draw details used in both of the Discourse Analyses and the Case Study.
Foucault and ANT-Inspired Discourse Analysis

Discourse analysis is a kind of research that has as its focus the use of language, and how actions and their organization are represented. When such analysis is inspired by Foucauldian thought, it “concentrates on making explicit the historical context in which [a] discourse is situated…[and] the power conflicts in which different groups vie to impose their agenda” (Jacobs, 2006, p. 142).

Dolphin-Assisted Therapy incorporates various actants in a network of socio-spatial relations that are complex, varied, and contested. The relational processes that produce DAT are sometimes described as power relationships, defined as interactions in which there is an imbalance of control, producing dominance and oppression (O’Barry and Coulbourn, 1989; Bekoff, 2007; Marino and Stewart, 2009; Warkentin and Fawcett, 2010). However, this research, following Foucault (Mills, 2003, pp. 34-35), accepts that power is only understandable as both ‘power over’ and ‘power with’, or as both disciplinary and productive, and is not (always) a noun but is (sometimes) a verb. This means that power in action is not taken, in all cases, to be destructive or limiting. Power can oppress or provide oversight and direction, and it can, when potentially destructive produce positive effects, by being contested or resisted. It can provide disciplinary structure that enables liberty (Hearne, 1994, 1995; Haraway, 2008) and even life itself in the cases of rescued dolphins given ‘a new lease on life’.

Unpacking the relational processes and effects of power is the aim of this kind of discourse analysis, situating it “within its appropriate social, cultural and geo-historical context” (Doel, 2010, p. 491) as results of networking actants.

Scholars have suggested that, to contextualize a discourse is to view it in relation to its social spaces, both those that produce it and those that it produces, and to do this, more than texts need to be included:

“…the analysis of discourse, according to a Foucauldian perspective, cannot remain simply within the text, but needs to move…both in and out of the text” (Hook, 2001, p. 543, emphasis original).

It is consistent with Hook’s perspective that ANT is also enlisted as an inspiration for this research. To investigate across species boundaries (Birke and Hockenhull, 2012, pp. 1-14) the concept of entities as circulating, unstable networks of relationships ‘holds open’ the possibility for dolphins, humans, practices, experiences, and spaces.
to be represented in a discourse. This perspective calls for several responses in this project – by two forms of discourse analysis, which is how the analysis of data is accomplished.

**Genealogical Analysis**

Genealogical analysis is a special form of discourse analysis. Prior to this research DAT has remained unexamined as a socio-natural phenomenon. Therefore, a genealogical analysis is undertaken to document and contextualize the textual and other data that comprise its discourse, as a relational history of ideas. A genealogy of this kind is described by Smart (2002), while discussing his understanding of Foucault’s development of the method:

“Genealogy as the analysis of historical descent rejects the uninterrupted continuities and stable forms which have been a feature of traditional history in order to reveal the complexity, fragility, and contingency surrounding historical events” (2002, p. 49).

For this research, a genealogical analysis is used to create a partial ‘typology’, a kind of mapping of discursive space, noting that: “[in a typology] it will seldom be possible to arrive at simple, univocal definitions” (Malpas, 2006, p. 35). Rather, the genealogical analysis reflects the multi-vocal and complex socio-natural qualities of DAT, which are in a process of becoming.

The genealogical analysis in this project begins with a geo-historical review, which necessarily includes its geo-ethical aspects. This constructs a socio-spatial sense of the key elements of DAT and the sources of some of its contested spaces. The second section constructs a (tentative, and workable) definition of DAT. Establishing a definition is a task fraught with politics, that is, issues of control and power (Foucault, 1972). This is accomplished here by analyzing definitions and conceptualizations of DAT found in academic texts as well as definitions used by commentators in the popular press and activist reports and campaigns, and by practitioners in their marketing of DAT, and with reference to the different definitions used by those who originated DAT. This section includes a typology of the various conceptions of DAT, revealing how proximity to dolphins and their agency is a key factor in understanding its many variations.
The Case Study

According to most scholars, case studies constitute a methodological approach to research (Yin, 1981; Schwandt, 2007b; Baxter and Jack, 2008). To Stake (2000), and others (Hurd, 2003; Jupp, 2006; Yin, 2009) it is also a method that is somewhat similar to observational research (such as ethnography) in that it produces “experiential understanding…gathered at least partly by personalistic observation” (Stake, 2000, p. 24).

The second methodology used for this project is, then, a case study. Case studies have been a well-used form of research in Human Geography. They have been used to develop understandings of spatial relationships and their divisions and connections that occur across a broad range of places based on analysis of a specific site of social interaction. They are well suited for developing understanding of ‘how’ and ‘why’ something has occurred in “contemporary events, over which the researcher has little or no control” (Yin, 2009, p. 11). They are recommended for research into phenomena “within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (Yin, 2009, p. 13). In the case of DAT the boundaries between therapeutic practices and the conditions under which they occur, the needs of humans and of dolphins, and philosophical and ethical differences about the uses of animals for human purposes, are not always clear. Case studies, such as this one, place a bounded set of conditions and problems at the centre of one’s research focus, and use multiple sources of evidence (Schwandt, 2007b, p. 29) related to the Curacao Dolphin Therapy Center. Among them are: interviews with stakeholders; academic texts about the kinds of practices used there; texts from public media; and documents from activist organisations. A field study was undertaken by visiting Curacao for two weeks, during which time the majority of the interviews were done and observations of the environment of the island, the setting of the facility, and the facility itself were observed and documented. Audio recordings, texts, and notes in a research journal were collected to be analysed. The researcher was offered and accepted an opportunity to swim with two dolphins, adding to the affective understandings represented in this research (see Chapter Seven).
Data Acquisition

**Sampling and Recruitment**

Because this research seeks to gain understandings from within and about a relatively small population and a relatively small discourse, they can adequately be represented in small samples (Gray, 2009, p. 22). A comprehensive sampling of relevant texts was possible and was undertaken by using Google Alerts for any new texts and the University of the Sunshine Coast library system, through which academic journals and databases both academic and non-academic were searched, using search terms across a wide spectrum related to animal therapies and dolphins, dolphins, Dolphin-Assisted Therapy, animal rights and dolphins, animal liberation and dolphins, animal welfare and dolphins, and human-animal studies. Some texts were part of a comprehensive archive collected over nearly 30 years by the researcher. Texts referring to these topics were analyzed for relevant content. Some was part of public discussion forums and were eliminated based on repetition or lack of credibility.

The question of trustworthiness, whether research subjects can actually represent views of DAT, is a consideration when choosing from whom to gather and not gather data. From among many methods of sampling, a purposive method (Cresswell, 2009, p. 189) has been chosen. Among those who have been purposely enlisted are: families of DAT patients, comprised of parents, close relatives, or other supportive persons (carer); therapists; dolphin trainers; and members of the management teams that operate the facilities where the DAT is provided. In addition, interviews with several key informants from among those who have designed and initiated DAT programs were conducted to help develop a historical context, and to gain insight into contrasting views on how DAT is performed. Sampling these participants required seeking them out at remote sites (Curacao, Florida). Doing field research at sites where DAT is practiced has afforded windows of opportunity to conduct interviews, witness sessions, collect visual evidence, and access some of the affective environment in which DAT is practiced.

The key informants not at the CDTC were selected using several criteria. First, they were selected on the basis of whether they had a significant place in the history of DAT, and second, whether they were willing to be available for an interview. When
this research was first initiated cooperation by a DAT facility had been promised where a DAT program has been ongoing since 1998. However, when an application was sent to its research committee it was rejected on the basis that “it would interfere with a long-term longitudinal research project” (pers. com. to author, anonymous DAT facility, April 2011). Further inquiries to this facility failed to elicit more explanation. A visit to this facility was discouraged, and several other dolphin-interaction sites in the area (Florida Keys) actively resisted efforts to interview trainers, therapists or management. This was understood by the researcher as part of the bio-politics of human-dolphin encounters with its charged environment of contestation and the unfounded concern that his research was not academic in nature and was possibly biased against DAT or dolphin interaction programs.

The founder of Dolphin Aid, Kirsten Kuhnert, who had arranged for Dolphin Aid to operate the CDTC program and who had designed the DAT program, offered to be interviewed. This too was understood to be part of the bio-politics of DAT, another aspect of the contested spaces in which it occurs. Having an opportunity to share insights into DAT with an academic researcher was understood by Kuhnert to be of real value (Kuhnert interview, 2011). Other key informants were specifically sought (one of the original developers of the concept, an organiser of the two international DAT symposiums, a program manager, and a manager of a program that had since ended) and were interviewed by travelling to their homes or workplaces in South Florida while en route to Curacao. These informants were considered to be well-informed ‘insiders’, capable of supplying reliably relevant information based on their relationships to DAT’s theories, practices, experiences and resistances.

Searching for other sites for research and drawing upon prior knowledge of the history of DAT’s development as well as texts found online, a letter of introduction was sent to the Curacao Dolphin Therapy Center. A reply was received in which an offer was made to accommodate the research project. The Head Therapist had known of my (non-academic) studies of DAT, having read my book (Taylor, 2003). Negotiations were undertaken over several months during which it was made clear that my research was based on a carefully developed methodology and would be undertaken with due rigour. Strict conditions as to privacy, the right to end the research if the CDTC felt it was inappropriate, and non-interference with ongoing therapy were put in place.
Sampling across a complex discourse, comprised of many streams of potential information, for a limited project such as this can be facilitated by prior knowledge. In this regard the author’s many years of interest in various aspects of human-dolphin interactions affords a broad knowledge of the discourse and the various positions that constitute the contested spaces of DAT, and this facilitated access to a substantial collection of texts and data. These include both supportive and oppositional positions about DAT, representing its many ‘sides’. As an open-ended inquiry, and by using ANT’s method of ‘follow the actor’ as a guideline, this project used “snowball sampling” (Kalof et al., 2008, p. 45) by which additional sources of reliable information were discovered. This has included interviewees (as described above), intertextual relationships between documents (Atkinson and Coffey, 2004, p. 66), and affective, more-than-representational information to supplement the texts.

To recruit families for interviews, a letter was sent from a DAT facility, inquiring whether the family was willing to participate in this research. This letter (see attached Appendix C, item 1), written by the researcher, includes a general description of the research and the degree to which it might inconvenience them so that an informed preliminary consent can be acquired from them. Ethical consideration for the confidentiality of patient identities plus respectful consideration of families who did not want to expose their personal circumstances to research was taken into account. Owing to the confidential nature of patient and family contact details patient families were contacted directly by a DAT program to which they are in some manner affiliated. This placed certain limits on sampling, limiting it (in some cases) to those the DAT program selected to notify of the research. However, it did allow for those who considered themselves to be authentic participants and observers of the DAT experience and its social environment to participate. In the case of therapists and dolphin trainers a poster was put up in a shared staff space describing the research and inviting participation (see Appendix C, item 2). To recruit management staff letters were sent to several DAT facilities notifying them of this research with a request for their participation (see Appendix C, item 3 for an example). Key informants outside of DAT facilities (see above) who were identified and selected based on the author’s prior knowledge of the history and practices of DAT were sent correspondence requesting interviews. These informants were, in turn, asked for additional contacts to
others who were willing to participate in this research in its ‘snowball sampling’ process. This latter category of informant was interviewed in face-to-face sessions in Florida and by email.

**Interviews**
Due to limits of time, funding, and access, this research utilizes realistically accessible means by which to investigate DAT and its socionatural practices. In-depth semi-structured interviews were conducted with most, but not all, participants in and providers of DAT programs. Those whose perceptions of DAT were not sought were the patients themselves. As paradoxical as it would seem to not interview them, most patients in the ‘mainstream’ variety of DAT programs (see chapter 5) are young children who have central-nervous-system disabilities, and many are incapable of articulate speech, or the ability to communicate in complex fashion (Nathanson, 2007). Access to the experiences of these key actors was made via affective representations conveyed by family members, therapists, and trainers.

Open-ended, or semi-structured questions were used. The interviewee was encouraged to go beyond a simple answer, and to elaborate, within limits, on whatever they felt was important to convey to the researcher (Cresswell, 2009, p. 181). To this end, a set of questions was prepared, designed to elicit responses to important aspects of the DAT experience (see Appendix D). The questions were designed to ensure systematic coverage of the topic by asking about the entirety of the DAT experience. Questions were formulated in general terms. This was intended to limit, to some degree, “expectancy effects” (Rosenthal, 1994), which can lead to interviewees saying what they think a researcher is hoping to hear. In some cases questions were made more specific when the researcher witnessed a unique or insightful response and asked an interviewee to expand on their comments.

There were two general types of interviews conducted: those done face to face, in physically shared space, and those done online, in electronically mediated space, a relatively new method (Hay-Gibson, 2009, p. 39). This second type of interview consisted of email correspondence. Online interviewing has some potential disadvantages, such as the removal of the effect of embodied presence for both researcher and interviewee (James and Busher, 2009, p. 39). This can make the
observation of affective, non-verbal communication impossible, such as body posture, gestures, and paralinguistics, however the disadvantage is not considered to be insurmountable with careful questioning, returning to the same topic by using different questions, and careful reflexivity by the researcher (James and Busher, 2009, p. 40). Further support for email as an interview medium is provided by some researchers (Davis et al., 2004), who have found that asynchronous interviews (email) can “preclude loss of meaning and the disruption of coherent interaction” (p. 949) due to the time afforded by the medium to reflect on questions and replies. In all, thirty-two interviews were conducted: three by email and twenty-nine face to face. Fifteen families, nine therapists, four trainers, and four management persons were interviewed between June 20th and July 19th, 2011 (see Appendix E). Some potential interviewees did not choose to participate. Among families, it was reported by the Head Therapist, the need for privacy and the intensity of the experience caused some to decline and some did not participate due to language differences. Most therapists volunteered to be interviewed, and half the trainers participated. Those who did not do so did not express reasons for not participating.

Face-to-face interviews were digitally recorded as audio files. They were conducted in informal settings set apart from interruptions as much as possible, in as neutral a location as was feasible. Most were conducted at the CDTC in office space or therapy rooms. Several families and one therapist were interviewed in a nearby clinic, that of one of the therapist’s. The questions for each category of interviewee were generally the same, with situation-specific adjustments (in other words, families were not asked about their history as dolphin trainers, etc. See Appendix D). The methods used incorporated the open-ended possibility that the researcher repeated questions, or asked the interviewee to repeat responses in more detail. Each interview was scheduled as a one-hour session. Three interviews lasted over ninety minutes. One family asked to speak with the researcher again, adding some thoughts they had developed overnight, following their initial interview. This did not substantially add to the information the researcher was seeking, however. Several interviewees were contacted by email subsequent to the field interview session to inquire about further details. Names of interviewees were changed in the thesis to afford them anonymity, except in a few cases where permission was offered to use the name of the person interviewed.
Research Journal and Demographic Data

A hand-written journal was kept to record some affective, non-verbal information conveyed by the interviewees, conditions under which interviews were done, and other factors that may have had an effect on the quality of the interview (Cresswell, 2009, p. 183)

At the beginning of the interview process, a few demographic questions were asked of each participant, with answers recorded in the research journal. The variables sought were age, gender, occupation, country of origin, and relation to the patient (if applicable). The aim was to find some of the social elements that may inform perceptions of DAT participants. This data was not analysed statistically, but was used in the generation of qualitative interpretation in an effort to enable a meaningful ‘attribute coding’ (Saldana, 2009) of interview data. Attribute coding is part of the ‘open coding’ that precedes more formal coding processes, and in this case, informed the researcher about specifics that could help focus and enhance the interview results. If, for instance, a therapist was from Holland, their geographic movement to a Caribbean island could play a part in their perceptions; if a family member commenting on the qualities of therapy was from a professional background, their data could become part of an argument relating to some criticisms directed at the practices of DAT. Appendix E consists of several tables in which the demographic data is presented.

Data Analysis

The methodologies used in this project are well-established systems for gaining a descriptive understanding. Where there are ‘multiple realities’ (Schwandt, 2007) such as: participant perceptions of histories and contemporary processes and experiences; non-human animal agency; multiple ethical concerns; textual oppositions, and an unsettled typology, several techniques and assistive technologies are necessary to investigate them.

Qualitative Thematic Analysis

Analysis is “systematic procedures followed in order to identify essential features and relationships [i.e.] pattern recognition” (Wolcott, 1994, p. 24) and is part of the
descriptive process of data that leads to interpretation, the “discussion of meanings” (1994, p. 24). This makes clear that the first step in analysis is categorization for the purposes of interpretation. Development of categories, and the implementation of a categorical framework for this research has been accomplished by the use of Qualitative Thematic Analysis.

Qualitative Thematic Analysis (QTA) (Rivas, 2012, p. 366) is a frequently used method in qualitative research, yet it remains under-acknowledged as a distinct method. Utilised in data coding schemes (Boyatzis, 1998; Saldana, 2009), it has recently been brought forward as a kind of analysis in and of itself (Braun and Clarke, 2006; Rivas, 2012). QTA is done as a repeating process, first coding for general themes in a flow of “open coding” (Rivas, 2012, p. 370, citing Glaser & Strauss, 1967), then by revisiting the material once general themes are discovered, seeking more detailed aspects of the general themes. As a multi-step process moving from ‘manifest to latent’ (Boyatzis, 1998) themes, QTA has the advantage of a deepening relationship with the data, revealing more and more information.

Interview recordings and texts were first analysed at the “manifest” level (Boyatzis, 1998, p. 28), that is, the presence of words indicating reference to themes such as dolphins, DAT, social effects, spatial effects, and ethical concerns, looking for data that fit pre-established general categories of data (Cresswell, 2009, p. 186). This step was also used to help discover new themes. Transcription of the recordings was kept within workable limits by a preliminary editing, making copies of relevant passages. The transcripts were then analysed at a ‘latent’ level (Boyatzis, 1998) for emergent affective themes, such as ideas, attitudes, or beliefs not necessarily directly described. These themes were given codes (Cresswell, 2009, p. 187) which used the ‘general symmetry’ concept of ANT, so as to build a database that could be used for analysis of other media: that is, journal articles, animal protectionist literature, and public media. As analysis of emergent themes highlighted areas of importance, several returns to the raw data were undertaken for further analysis.

A code list was developed based on the researcher’s general knowledge of the topic, focused largely on dolphins and ethical concerns about their involvement with humans. However, as is common in thematic analysis, once this general code list was
applied it became obvious that it would highlight some themes but would not highlight other less obvious themes. Another code list was generated, this time based on geographic concepts that were more relevant to a broader socio-spatial analysis. By doing these two codings a greater familiarity with the data developed. From these codings of the data extracts were compiled in a thematic framework with the extraction process itself aiding in deeper familiarity with the data. This then made evident that a third ‘pass’ through the data might reveal more information. A third code list was produced that enabled a more detailed list of concepts to be extracted. The final compilation of extracts from which quotes could be taken led to an enhanced, more in-depth analysis.

Assistive Technology: Computer-aided Research

This project used a computer-based system (TAMS, TA 4.15b1h, Text Analysis Markup System, on the Apple computer platform) for logging segments of raw data and interview transcripts and to aid in handling the large amount of data (Weinstein, 2008; Cresswell, 2009, p. 188). It also used a digital transcription software package (F5, Audiotranskription, v1.5.6) to support the editing and listening process. A third software program (Dragon Dictate, v. 2.5), which is an audio-transcription system with features that enables a very close approximation of spoken words by incorporating a ‘learning algorithm’ that adjusts to accent, vocabulary, and pronunciation was used to generate digital text. This system required the researcher to listen to the interview recordings and then speak them aloud in a near-simultaneous stream to enable the computer to generate texts in real time. This afforded the researcher several advantages. These were the elimination of the expense of a transcription service and the potential for misunderstanding of key terms by a transcriber unfamiliar with the field. In addition it allowed the researcher to engage fully with the interview materials again, developing new insights into the latent, affective meanings embedded in the recordings; and careful review and correction of the text produced by the computerised system. It also required repeated listening to enable clear understanding of interview answers from some persons for whom English is a second language. All of these factors increased the trustworthiness of the transcription process.
Chapter Summary

This qualitative research project has been designed to be responsive to the qualities of the topic: the contested spaces of Dolphin-Assisted Therapy as viewed through the lens of animal geographies in a “researcher-designed framework” (Cresswell, 2009, p. 19).

The sequence followed in this research project began with the determination of suitable methodologies that would produce rigorous and trustworthy data categorized so as to enable interpretation leading to understandings. The methodologies chosen were part of the multiply influenced field of Human Animal Studies: Foucault-inspired genealogy, Foucault-inspired discourse analysis, both ‘held open’ by use of ANT to access meanings, and a case study. Genealogy traces the ‘historical’ development of theories, leading to definitions, which is needed in this research. Discourse analysis affords research with broad insights into the topic’s complex relations to itself and other nodes in a matrix of knowledge, and a case study provides evidence of embodied and operationalized theories and practices. Each of these elements were needed to develop understandings of this complex topic.

For the genealogy and discourse analysis, the method used was textual analysis, understanding that texts are more broadly understood, within an ANT-inspired methodology as well as Foucault-inspired, as both representative and more-than-representative. Data acquisition involved sampling texts and internet-based documents from across the entire discourse of DAT, sampling from both the oppositional and supportive ‘sides’ of the discourse.

The next phase was to categorize the data by scanning across it, reading and reviewing. Repeating these processes revealed themes emerging from the data, affording categorical selection and organization of the data. Data was categorized using qualitative thematic analysis.

This categorization produced two distinct discourse analyses, a genealogical discourse analysis that constructed a history of the topic as well as a definition of it, and a more
general discourse analysis that constructed a body of data about the entire corpus of the field under study.

Data acquisition for the case study involved two stages – first recruiting interviewees via collaboration with the Head Therapist of the selected Case Study site and advertising for interviewees prior to and whilst visiting the facility, followed by a ‘snowballing’ technique, following leads to other interviewees. The second stage identified the activities and texts relevant to the Curacao case using library resources and internet searches. Within the case study, there were three methods of data acquisition. These included audio recording of semi-structured interviews with a range of stakeholders both at the Curacao facility and prior to arrival. It also included non-participant observation of activities and the setting in which DAT occurs at Curacao, recorded as field notes and photographs, and analysis of documents and text specifically related to the Curacao case study, and a brief in-water encounter with several dolphins.

The next phase in the Case Study was to categorize the data into themes that emerged from scanning across the data: reading, viewing, and listening. Repeating these processes revealed themes emerging from the data, affording categorical selection and organization of the data. Data was categorized using qualitative thematic analysis. The data was used to construct a narrative description of the physical and socio-spatial aspects of a particular site where the topic of study was practiced.
Chapter Five: Genealogy

A Genealogy of Dolphin-Assisted Therapies

A genealogy, including a conceptual framework and a definition, is developed and explored in this chapter by analysing the discourse of therapies that involve dolphins in their practice. This Foucault (and ANT)-inspired genealogy is a type of discourse analysis, as described in chapter 4, and is more than a history. It draws upon scholarly literature, interviews with families and practitioners at a DAT facility, marketing descriptions, websites, brochures, reports, and activist campaigns and considers the socio-spatial context. The genealogy includes a typology, a ‘map’ of the wide range of therapies that involve dolphins to elucidate a conceptual framework of Dolphin-Assisted Therapy. The final part of this chapter compiles the complex geo-history and the conceptual framework of multiple types of DAT in order to define it and provide a rationale for the focus of this research.

Representation, in Human Geography, refers to the power inherent in the creation of spaces by textual, visual, or verbal presentation of information. It is “the practice of constructing meaning through language” (Kobayashi, 2009, p. 347). This genealogy of DAT is a socio-spatial analysis of its representations as they develop, support, question, and oppose the therapy’s various constructions relative to concepts such as environments and distance between species.

A Framework for Understanding

To develop understanding of the contested spaces of Dolphin-Assisted Therapy this chapter presents the various constructions of DAT produced by key individuals and organizations. Section One is a historical analysis of the development of the various theories within the discourse of DAT. Section Two constructs a conceptual framework to understand how the various constructions are deployed in the field of dolphin-assisted therapies. Together these map the range of practices that comprise
the field of DAT. This is intended to clarify why this research uses only a few types of DAT for its further analysis, and identifies them. The genealogy of the varied types of DAT and how they are theorized and practiced informs the development of understandings and a definition that will be drawn upon in chapters six and seven, where evidence of how DAT is experienced and resisted will be analysed.

Section One: A Geo-History of Dolphin-Assisted Therapy
This history of DAT is a somewhat detailed ‘geo-history’ that traces the connecting, dividing, and ordering of socio-natural spaces in which DAT has been occurring, as well as the influences these spaces have had on its various theories and practices. It is not an analysis of its economic or psycho-therapeutic histories.

The existence of contested spaces within DAT is accepted as an existing condition elucidated by the following geo-historical narrative.

Early History: Smith and Nathanson
Unusual reactions by children with disabilities to dolphins was noted in 1972, when Dr. Henry Truby, President and Research Director of the World Dolphin Foundation/Dolphin Project in Key Biscayne, Florida observed “that neurologically impaired children appeared to demonstrate exceptional responses to free-swimming dolphins” (Smith, 1983, p. 460). Later that year (1972) Smith took her brother, who had intellectual disabilities, to visit the dolphins at the Dolphin Project. She noted how the dolphins responded to the differences in her brother with a gentle regard for his awkwardness (Smith, 1983, p. 460). This was, apparently, the first time an academic (Smith is an educational anthropologist, and now retired associate professor at Florida International University) noted the possibility that dolphins would engage with humans who have unusual conditions in therapeutically useful ways. The following year, Truby (Emeritus Professor of Pediatrics and Linguistics at the University of Miami) took two boys with autism to the Miami Seaquarium to interact with dolphins, and witnessed an increase in their sociability and attention-holding during the encounter (Hyson and Newland, 2011, np).
After consultation with Nathanson, a clinical psychologist and also a Professor at Florida International University, who was conducting a pilot study of dolphins as a possible stimulus for persons with disabilities (see below)\textsuperscript{20}, in 1978 \textit{Project Inreach} was established by Smith, Truby, and Phillips at the Miami Seaquarium, a dolphin-display facility in Florida (Smith, 2003, p. 240):

“[The] two primary goals [were]: to see if an affinity exists between the children and the dolphins; and to establish if interaction between them would cause any behavioural or verbalization changes” (Smith, 2003, p. 240).

This description differs somewhat from that provided in an earlier work published in 1983, however, where three hypotheses are described:

“…first, the possibility that specialized dolphins [sic] and children labelled autistic can elicit unprecedented communicatory demonstrations; second, the possible therapeutic benefit for children, parents and human service workers; and third, generation of additional study material for serious interspecies programs” (Smith, 1983, p. 461).

The variance between these descriptions highlights key problems with efforts to understand Smith’s approach to dolphin interaction as therapy: published records of her efforts are inconsistent with standards for scientific reporting and vary in different texts.

\textit{Project Inreach} lasted from December, 1978 until August 1979, nine months, totalling six sessions of from four to six hours duration provided to eight children between the ages of ten and seventeen, either “classically autistic” (sic) or with neurological damage (Smith, 2003, p. 240). One boy in particular had results that were suggestive of DAT’s positive efficacy and Smith arranged to continue ‘therapeutic play’ sessions with him. She reported that additional sessions during subsequent years (described in Smith, 1984) led to marked and lasting improvement for this young man (Smith, 2003, p. 241). The close proximity to the dolphin and playful interaction, described in an anecdotal story (Smith, 1984), invited others to do scientific research on therapeutic interaction with dolphins.

The same years, 1978 and 1979, Nathanson ran an experiment with two children with Down’s Syndrome at Ocean World, Fort Lauderdale, Florida. Nathanson, a practicing
clinical therapist, had been doing research on and working with children with disabilities for some years. His doctoral thesis had addressed children’s ‘attending behaviour’, the actions that are part of paying attention to stimuli (Nathanson, 1972). He reported that placing children poolside and offering dolphin interaction as stimulus and reward resulted in increased attention span and improved language skills (Nathanson, 1980). This led to more experimentation, and nine years later Nathanson published his first significant study (Nathanson, 1989) in which he asserted that “children learned two to ten times faster and with greater retention when working with dolphins” (Nathanson, 1989, p. 233). This first academic study into the efficacy of dolphin-assisted therapy showed that the close proximity of children and dolphins as part of a therapeutic endeavour was effective.

In the meantime, Smith’s experimental sessions involving various individuals led to the design of a pilot program entitled “Dolphins Plus Autism” which she and a team of therapists and support staff put into effect July 21-28, 1987 (Smith, 1987; 1988, 2003). This program involved either eight or “seven severely autistic adolescent [sic] male participants” (Smith, 1988, p. 6) – Smith’s accounts differ as to the number of participants (see Smith, 1987, p. 387-388). They were between the ages of 12 and 25 years. It appears that four were assigned to sessions of water play with inflatable dolphins and perhaps four were given therapeutic-play tasks with dolphins involved in their play activities. Each group participated in sessions over a period of a week for several hours each day. Results during the program were observed to be an increase in social interaction, more high-energy play, and sustained attention to tasks (Smith, in Myers, 1989). The long-term outcomes (assessed after six months by means of written questionnaires filled out by family members) were found to be that the young men who played with the dolphins were calmer, more self-sufficient, and that their sleep disorders were alleviated markedly (Smith, 2003, pp. 243-244). These observations by Smith were shared at international conferences (ICERC, 1988), in public media (Myers, 1989), and in a psychological association’s newsletter (Smith, 1987) among other fora, and were enthusiastically embraced by journalists and therapists, indicative of a growing public interest in dolphin-based therapies.
Smith’s contribution to the early discourse of DAT was the idea of close proximity of dolphins to humans as playmates, understood as a potentially therapeutic interaction, where distances apart are decreased to afford emotional connections between species.

Dobbs

In the early 1970s Horace Dobbs, an English pharmaceutical researcher and amateur diver, began filming his underwater adventures. He encountered a dolphin while diving and became fascinated by the phenomenon of solitary sociable dolphins (Goodwin and Dodds, 2008). Dobbs’ 1976 film entitled *Ride a Wild Dolphin* helped him begin a second career, filming, studying, and writing about his interest in dolphins. In 1986 Dobbs took several friends to Ireland: Bill Bowells, a man with clinically diagnosed depression; Jemima Biggs, suffering with depression and anorexia; and Neal Jackson, diagnosed with paranoid depression, to meet a wild solitary dolphin named Fungie (Dobbs, 2000b). Bowells was emotionally affected by his encounter and his depression ended quickly (as did that of Biggs and Jackson). Dobbs wrote and presented a television documentary that was widely seen in England focused on Bowells’ experience in these encounters (Kennedy, 1988). On the basis of the success of these encounters, Dobbs established Operation Sunflower, with the intent to explore how dolphins might affect human health, theorizing it was the sense of joy experienced during these encounters that has healing effects. Although no formal research was conducted or published, Dobbs wrote numerous books describing his experiences (Dobbs, 1977, 1981, 1987, 1990, 1992, 2000b). His early efforts to afford persons with mental and physical health impairments intimate access to wild dolphins was another type of DAT. It was conceived not as a systematic application of psychological techniques like the Human Dolphin Therapy of Nathanson, nor as Smith’s semi-structured form of play therapy, but as a therapy dependent upon the “exuberant joy of living…which dolphins give out” (Dobbs, 2000b, p. 169). It was close proximity to free-ranging dolphins that was the essential key to this, as understood by Dobbs.

These three key figures in the founding history of the development of DAT (Smith, Nathanson, and Dobbs) later re-considered their earlier enthusiasms for dolphin-based therapy. While all acknowledged the importance of close proximity between humans
and dolphins each developed their theories and practices in different ways and revisited the practical application of their ideas using ethical considerations to frame their changed views. In tracing the history of these changing positions further within the DAT discourse some of its contested definitions, ethics, and socio-spatial effects will be made more explicit.

Dolphin-Assisted Therapy: the Smith model

Smith contributed a chapter to *Between species: celebrating the dolphin-human bond* (Frohoff and Peterson, 2003) entitled *The discovery and development of dolphin-assisted therapy* in which she described the early discoveries and successes made during her work with patients and her husband. She reported that her husband’s stroke-induced negative moods were “changed” and the dolphins “restored his positive spirit of recovery” (Smith, 2003, p. 244). Despite positive assessments of DAT, based on her ‘water play’ methodology, she concluded the chapter by outlining her reasons for “stop[ing] all dolphin-assisted therapy research in 1992” (Smith, 2003, p. 246). She found that

“…upon returning from wild dolphin swimming, it became difficult to see Dingy and L.B. [two dolphins] confined, and I found myself thinking often of George [a dolphin], who died prematurely in a cement tank, and Angel, condemned to captivity until she dies. I had learned much from them and could do nothing to reciprocate” (2003, p. 245).

The dolphins Smith names had been captured, displayed, used in her pilot studies, then two of them sold to another dolphinarium, an outcome of capitalist enterprise beyond her control. At the time this kind of enterprise was considered normal (Gray, 1964; O’Barry, 1989). Smith’s concerns for dolphins living in built environments, ‘condemned to captivity’, contrasts with her experiences among those in ‘the wild’.

Smith describes her changed notions of dolphin enclosure and its relation to therapy:

“…dolphinariums and swim programs are for-profit businesses…for the sole purpose of financial gain…[who] justify their exploitation under the therapy pretext. Every dolphinarium and swim program extolled the “therapeutic value” of dolphin contact, even though a child having fun is not equivalent to
therapy…[a]t the heart of all these therapy programs is the exploitation of vulnerable people and vulnerable dolphins. My name or references to my work were often associated with the public-relations come-on appeal extolling the virtues of these programs. Therefore, I had to stop all associations with captive dolphins.” (2003, p. 245).

These socio-spatial dilemmas around captivity of other species within ‘enclosed’ or built spaces morally challenged Smith’s former enthusiasms and brought her former work under critical self-examination. Smith criticized the charging of fees for therapy programs. She compared her pilot studies, for which she did not charge fees, run as experiments by a small group of volunteer academics and therapists, to scaled-up programs with multiple therapists taking place at expensive-to-maintain facilities with paid staffs. The dolphinarium she had used was an established one willing to “close for the project duration and suffer the financial loss” (2003, p. 242). She states that everyone associated with her research “was licensed and had exceptional professional skills” (Smith, 2003, p. 245). However, Smith herself did not hold a license as a therapist, nor as a clinical psychologist. After describing a brief period during which she explored the possibilities of doing DAT with wild dolphins, Smith explained her concern:

“Those studying wild dolphins report humans chasing them with boats and polluting their water with noise and garbage, creating very stressful situations. Therapeutic purposes are often the justification given for this rude invasion” (2003, p. 246).

The claim that dolphins are being stressed and chased by humans seeking therapeutic purposes is not supported by available evidence. While pressure on dolphin populations from human tourism has been documented (Orams, 2004; Stensland and Berggren, 2007; Lusseau et al., 2009), other studies show little problem resulting from this (Lusseau, 2003; Samuels and Bejder, 2004; Higham and Bejder, 2008). In some cases improvements in such touristic interspecies interactions has been underway for years (Wilke et al., 2005; Smith et al., 2008; Higham et al., 2009; Taylor, 2009; Taylor and Carter, 2013). No evidence has emerged from this research that dolphin tourism identified as having therapeutic purposes decreases the quality of life among wild dolphin populations. There are therapeutic programs taking place in
the oceans (Connell, 2010; Hargitay, 2011; Wille, 2011) that describe ‘respectful interactions’ as their method, having learned from the ‘rude invasions’ of tourism that do occur (Mustika et al., 2013).

While Smith retained her former conviction of the efficacy of DAT, she argues:

"I do plan to go back, " … "But not until I find the appropriate setting, where I can work with wild dolphins and where people are not trying to capture them or disturbing their environment" (Smith, in Ito, 2003, np).

Smith’s key role in DAT’s early development was not based on a scientific approach; however, her ideas about the value of dolphin interaction in the form of therapeutic play have become part of current DAT theories. The difference between built environments, ‘disturbed’ environments, and ‘appropriate’ environments, which Smith identified as the necessary condition for her return to DAT, indicates a socio-spatial construction of ‘the wild’. She constructs an ocean-scape that is a purified, yet blurred, conception of spaces that do not include human activities, a space where only Smith and her patients should be able to enter. The lack of clarity characterizes the contested notions of DAT that Smith has contributed to its practices.

Dolphin Human Therapy\textsuperscript{21}: the Nathanson model

Nathanson has relocated his Dolphin-Human Therapy (DHT) practice at least seven times: from Fort Lauderdale to the Miami Seaquarium; to the Dolphin Research Center (Grassy Key); to Dolphins Plus (Key Largo); to Xcaret, Mexico; to Dolphin Cove (Key Largo, Florida); to a municipal swimming pool in Simi Valley, California; to a community swimming pool in Homestead, Florida; and is currently (2014) at Dolphin Cove, in the Cayman islands\textsuperscript{22}. Such movement to various sites characterizes the changing socio-spatial environment in which DAT has operated since its inception.

While the scope of this research precludes a more detailed geo-history of Nathanson’s DHT, several of its moves are described here to illuminate the socio-spatial factors involved. Nathanson’s DHT began as an experimental pilot study at a public display facility in Fort Lauderdale, in exchange for whatever publicity it might attract (Nathanson interview, June 2011). Its increasingly profitable (and financially
pressurized) programs in a series of locations have attracted patrons, supportive patients and their families, and supportive as well as oppositional academics. Each of these factors: theoretical development; research and improved efficacy; financial success; and resistance have played a role in the geographic relocations of this program (Nathanson interview, 2011). The relocation of Nathanson’s DHT illustrates the socio-spatial processes whereby dolphins and DAT providers move from place to place forming a global network intersected by families seeking therapeutic goals for their children.

Nathanson describes DHT as part of an extended global community:

“…a 5-day per week, 41-week per year professional rehabilitation program utilizing dolphins as part of therapy. From 1995 through 2005, Dolphin Human Therapy treated approximately 4,000 children and adults with disabilities, representing more than 70 primary diagnoses, 60 countries and 39 states, and more than 40,000 therapy sessions” (2007, p. 182).

He includes the multiple skills and professions in his description of the extended community of DAT practitioners:

“Dolphin Human Therapy employs experienced, appropriately licensed or certified professionals from rehabilitation disciplines such as physical, occupational and speech therapies, nursing, special education, and psychology” (2007, p. 182).

Nathanson’s research has had a pervasive influence over DAT worldwide. He has published more academic papers than other DAT researchers, with five articles in the peer-reviewed journal Anthrozoos (Nathanson and de Faria, 1993; Nathanson et al., 1997; Nathanson, 1998a, 1998b, 2007), one book chapter (Nathanson, 1989), and a presentations at international conferences (Nathanson, 1980). Websites for DAT programs in Lithuania, Japan, Turkey, Mexico, Indonesia, and the Netherland Antilles23 [among others] reference Nathanson’s theoretical framework as core components of their own methods, indicating the global reach of his theories.

Nathanson’s conceptual model is relatively simple and straightforward and is based on operant conditioning. He states that
“[t]he theory and research behind Dolphin Human Therapy is that children and adults will increase attention if they can earn a meaningful reward. A behavior modification procedure is used to reward (interaction with the dolphins) the person for correct cognitive, physical or affective response” (Nathanson, 2010).

He cites several sources (Sokolov, 1963; Zeaman and House, 1963) that describe the ‘attention deficit hypothesis’ as “an important construct in discrimination learning for retarded populations” (Nathanson, 1998b, p. 201). In the orientation lecture he provides for families attending his therapy programs, Nathanson states that the attention deficit hypothesis is “the basis for our program” (Nathanson, in Mordaunt, 2010). He describes attention, the ‘attending to’ of physical sensory input, as the first step in learning, with cognitive processing of information gathered by attention as the second step. Nathanson found that it was possible to motivate increased attention by offering access to close dolphin proximity, and thereby, learning can take less time to occur. Following Skinner (2005), such an approach can be described as operant conditioning whereby voluntary behavior is modified toward desired outcomes based on consequences of either positive reinforcement (interaction with a dolphin) or negative reinforcement (delay of access to the dolphin). Nathanson’s emphasis on attention increase tends to obscure the fact that his program has always included a variety of therapeutic modalities, such as physical therapy, speech therapy, occupational therapy and others (Nathanson, 2007, p. 182). These other therapies are subsumed under the DHT protocols established by Nathanson, with attention increase being the primary technique used to “jump start” (Nathanson, in Mordaunt, 2010-2013) improvements developed and pursued using more traditional therapies.

Nathanson retreated from DAT for several years (2006-2010) as he and his staff investigated alternatives (see below) to the use of dolphins (Nathanson, 2007). However, he returned to the therapeutic use of dolphins in July, 2010.

In 2005, Nathanson had ceased his activities at Dolphin Cove in Key Largo, where he was conducting a therapy program. The facility was owned and the dolphins cared for by a long-time dolphin care organization that wanted to increase the fees they charged for the use of the facility. Nathanson was unwilling to meet this requirement (Nathanson interview, 2011). His company had never owned its own facility, due in
part to the complex requirements of care for the dolphins and the licensing necessary to own dolphins.

Informed by many years of exposure to the challenging daily reality of care for dolphins, Nathanson described the limitations imposed by the variables of working with living animals. These include socially constructed and physical challenges such as:

“dolphins are associated with environmental, legal/administrative and practical limitations which make their use costly and inflexible in program design” (Nathanson, 2007, p. 182).

Biological requirements are of equal importance, referred to by legislated requirements limiting the many aspects of DAT facilities, programs and practices:

“Restrictions on the acquisition and use of dolphins include moratoriums on “takes,” or capture from the wild, and importation; time limits on in-water interaction of 2 h per dolphin every 24 h; mandated rest periods for dolphins following work sessions; specifications on lagoon depth of 9 ft in man-made facilities or an average of 9 ft in natural lagoons; specifications on surface area and configuration; veterinary care and others” (Nathanson, 2007, p. 183).

Nathanson notes that environmental conditions are controlling factors in the location of DAT facilities, affecting program schedules:

“Dolphin Human Therapy does not conduct therapy between the middle of December and the beginning of March because water temperatures in Florida Bay in Key Largo during those 11 weeks are too cold for most children with disabilities. Environmental limitations also include poor weather conditions due to tropical depressions, storms or hurricanes; lightning; algae blooms; sea lice infestations; and problems with fish and other sea creatures in the fenced lagoon” (2007, p. 183).

Other environmental and biological factors Nathanson identifies contribute to the numerous limitations confronting a DAT program:

“Practical problems include scheduling make-up therapy sessions due to bad weather or fixed feeding schedules of dolphins; government mandated evacuations of families in hurricane season (e.g., six evacuations in 2004 and 2005); unreliability of dolphin interaction; and temporary exclusion of a
dolphin from the program due to illness, pregnancy, or unknown causes” (2007, p. 183).

Nathanson also points out that

“future legal and administrative restrictions could include reductions in time spent in water with dolphins, or eliminating in-water interaction completely” (2007, p. 191).

As a result of these many socio-spatial limitations and resistances, Nathanson decided to investigate the possibility of using an animatronic dolphin in his therapy, a full-scale life-like puppet (Nathanson, 2007).

Nathanson contracted with Animal Makers Inc. to build a mechanical dolphin (Test Animatronic Dolphin, or TAD). TAD is “a life-size entity for therapeutic use in water” (Nathanson, 2007, p. 184) and is “not a robot” (2007, p. 183), but is operated remotely by humans. A more detailed description of TAD’s operation makes this clear:

“TAD was placed in the shallow end of the pool, and mounted on a two wheeled apparatus that provided movement by pushing on an attached underwater mechanism. Cables controlling TAD’s head and body movements up and down, left and right, and the opening and closing of the mouth, were hidden inside the body, with the cables extending from the underside of the body to levers mounted on support platforms inside a tent at the side of the pool.

The 8 ft x 8 ft tent, with a screened viewing window, was set up at the side of the pool each day prior to the arrival of the participants. Inside the tent were the cables, cable operators, and electronic equipment which allowed TAD to make recorded dolphin sounds and to spray water from the blow hole on the top of TAD’s head. The two or three cable operators, called puppeteers, were Animal Makers employees” (Nathanson, 2007, p. 184).

This constructed dolphin is a simulacrum whose socio-spatial ‘distance’ unsettles the haptic intimacy of the ‘mainstream model’ of DAT (see page 92). It employs non-therapists to operate the puppet in response to the patient in an attempt to determine
whether the agency of a dolphin is equivalent to that of a team of invisible human technicians manipulating a mechanical object. To achieve this effect, a therapist oversees the close proximities of the encounter between patient and puppet. In some ways this is not, perhaps, as much of an anomaly as it would at first seem. Others have utilized ‘distancing technologies’ in attempts to resolve ethical and practical problems in DAT, i.e., Dobbs, with his ‘dolphin pills’ in the mediums of audio-tapes and films, and his constructed ‘dolphin dome’ environments; Smith in her travels seeking an undisturbed ‘wild’ apart from human activities; and others who create ‘dolphin essences’ or practice ‘distance healings’ that are said to contain dolphin energies (see Section Two). What sets Nathanson’s TAD experiments apart from all of these is his effort to scientifically measure its relative efficacy.

A formal research project exploring the TAD project was undertaken by Nathanson and colleagues (Nathanson, 2007) with 35 young patients with ten different clinical conditions of disability. Each child was exposed to dolphin interaction and TAD interaction, and the ‘orienting response’ to each was measured. Nathanson was able to show some effectiveness of an animatronic dolphin as a replacement for living dolphins for some patients using modified therapeutic methods. This type of ‘dolphin’ can be described as a socio-natural hybrid, a mixture of the nature or ‘essence’ of dolphins and the technological imagination that seeks to reproduce nature. Its ‘bodily presence’ problematizes the binaries of species interaction that occurs in the wild and in captivity, opening questions about the role of nature (the Biophilia Hypothesis) in psychological theories in support of DAT therapy as found in Antonioli and Reveley (2005) and in Handley (2006), for instance.

Nathanson’s attempt to move away from DAT via TAD and his current return to providing DAT in the Caribbean region indicates how the TAD project unsettled his own relationship to DAT. Nathanson describes his quest for a means to overcome the socio-spatial limitations of DAT:

“In 2002 and 2003, I investigated use of dolphin facilities outside the United States as a potential solution to the limitation problems. High cost, travel limitations, inadequate medical help, lack of appropriate dolphins, and regulatory restrictions in other countries precluded therapeutic use of satellite facilities at that time” (Nathanson, 2007, p. 183).
In 2010, DHT was re-established on Grand Cayman Island, Nathanson having to some degree overcome the limitations that had led to the puppet dolphin project. However, the relatively remote location of Grand Cayman Island has reduced its accessibility. The manager of the DHT program on Grand Cayman has stated that “We’re back at it, and it’s a struggle. We don’t know if it’s going to work out” (Sandelin, interview, 2011). Having overcome some of the limitations described by Nathanson, the lack of close proximity of the Cayman islands to DHT’s clients has revealed another limitation affecting the program.

The Dolphin Dome: the Dobbs model
In the late 1990s Dobbs announced his decision to stop his project of bringing people to swim with wild dolphins. He had never condoned, or participated in, dolphin encounters in human-managed facilities and he felt that his public statements, films, and lectures about the healing potential of dolphin encounters had been instrumental in the increase of visitation to seaside sites where solitary dolphins visited humans. His concerns for his effect on increasing human desire for intimate proximity with dolphins led to a significant change in his approach to DAT:

“The success of my experiment, however, posed a major problem. In Britain, an estimated one person in ten was expected to need some form of psychiatric help during his or her lifetime. Clearly taking even a tiny fraction of these people out into the sea to swim with dolphins was utterly impossible. I needed a dolphin pill” (Dobbs, 2006, part 2, np).

Dobbs’ sense of personal responsibility for a socio-spatial phenomenon appears misplaced, as his enabling of therapeutic encounters with free-ranging dolphins was not unique at that time. Other persons in those years were extolling the positive gains to be had from visiting dolphins in an expanding global discourse (Gawain, 1981; Miller, 1989; Ocean, 1989; Cochrane and Callen, 1992; St. John, 1994; Ocean, 1997; Selke, 1997; De Bergerac, 1998). However, Dobbs did bring (especially English) attention to dolphins and the potential for such encounters to be therapeutic.

Dobbs subsequently designed and had constructed an inflatable semi-transparent plastic dome for children to crawl into called Dilo’s Dolphin Dome. This constructed environment was used to listen to dolphin sounds while dolphin images were
projected onto it in hopes that this might replicate and replace an in-water encounter with dolphins (Dobbs, 2000a). He produced and marketed an audio tape (now a CD) called *Dolphin Dreamtime* and promoted it as having therapeutic properties:

> “*Dolphin Dreamtime* is now established as a useful tool for psychiatric wards. In addition to its usefulness for the treatment of those diagnosed as clinical depressives, the *Dolphin Dreamtime* is finding ever widening applications. These range from relief in students of pre-examination nerves, to the prevention of insomnia” (Dobbs, 2006, part 3, np).

These constructed experiences between species indicate a reliance on technologies to replicate nature, a process of socio-natural hybridization that Dobbs reports as having beneficial effects (Dobbs, 2006, part 3, np). Dobbs had hoped to develop the Dolphin Dome as part of his own charity organization and contracted a marine consultant to help with its development. The consultant took over the project, calling it his own (Obernay, 2011). The Obernay Dolphin Dome was developed and used in several settings as an effort to establish “Artificial Dolphin Assisted Therapy” (Obernay, 2011, np). The company behind the project reportedly had to “terminate the Dolphin Dome project” (Daily Record, 2013) due to its lack of successful commercial application and the lack of successful research on its efficacy.

Reversing his former position, Dobbs now occasionally accompanies dolphin excursion trips to visit wild dolphins, marketed under the name of Operation Sunshine, a registered charity in England affiliated with his own “International Dolphin Watch” organization (Dobbs, 1978-2013). He serves as “patron, researcher and medical advisor” (Connell, 2010). These shifting spatial locations for therapeutic experiences, from sea-side with wild-but-habituated-to-human-proximity dolphins, to a small man-made plastic enclosure with representations of dolphins, to live-aboard boats sailing in the Bahamas, indicates Dobbs’ fluid notion of what DAT is, and where it can be undertaken.
Summary of the early history of DAT

This geo-historical review has explored the dolphin-enhanced therapies of Smith, Nathanson, and Dobbs. Smith’s approach centers on “water play” (Smith, 1983, p. 462) with dolphins, including “pouring buckets of water on the dolphins; splashing by the dolphins and participants; and dolphins sliding over the top of the tank to allow physical contact to occur…ball tossing…constant touching of the three dolphins by all of the children” (Smith, 1983, pp. 462-463).

Smith’s work with DAT was a play-based form of general investigation (pilot studies) published in public media. Evidence suggests that Smith’s direct experience with her brother and her husband, and one particular young man, gave her a strong sense of the effectiveness of DAT. The confrontation with ethical challenges overrode her enthusiasm, leading her to end her public role in DAT and to oppose others who continue to offer DAT. The nature of Smith’s ‘construct’ of DAT remains unclear. She is quoted as saying that “what these people are doing is behavior therapy [and] that is not dolphin-assisted therapy” (Smith, in Ito, 2003, np, emphasis original).

Smith does, however, retain a vestige of her former conviction of the efficacy of DAT, which is evidence of her unsettled socio-spatial relationship with DAT. As awareness of the lives of dolphins and the circumstances they are said to live under when in built environments has become more widespread, bolstered by animal protectionist campaigns using carefully selected scientific research, many people have questioned human-dolphin relationships. Smith exemplifies the ethical challenge this represents.

Nathanson’s methods rely on attention increase stimulated by a reward system, as part of a method of therapy in which each patient’s individual needs are addressed by other modes of therapy. It is a simple operant conditioning process using the positive reinforcement of dolphin interaction. Nathanson has an unvarying thematic approach to his work. He has dealt with the limitations inherent in current DAT (that is, its socio-spatial constraints), and acknowledges them through his attempts to move away from, then back to living dolphins, and from place to place, seeking less restrictive conditions.
Dobbs’ therapy idea, about how dolphins affect mental states via their ‘joyous presence’, has become part of the general field of dolphin therapies. However, his efforts to “identify and isolate the spirit of the dolphin…the unique power of the dolphin” (Dobbs, 1977, p. 237) and his conviction that an audio recording, *Dolphin Dreamtime*, “had managed to capture and express something of the spirit of the dolphin” (Dobbs, 1990, p. 161) which could be used as an “audio pill” (Dobbs, 1990, p. 167) has had little impact on DAT as a whole. Aside from Dobbs’ statements on his website and in his books, no analyzable evidence has been presented of its use in his therapy programs. His suggestion that his films could be used “for visual pills” (Dobbs, 1990, p. 167), or as “bottled dolphins” (Dobbs, 1990, p. 167) has had similar lack of effect on the practice of DAT relative to these products, but his replication of dolphins is reflected in many products available over the internet in the form of films, music, and images. His providing of direct experiences with living dolphins in the sea were unsettled, over time, by Dobbs’ own growing socio-spatial concerns about people entering the habitats of dolphins as an unacceptable transgression. This led to his efforts to extract value from contact with living dolphins, mediated by a technology of electronic duplication, as a means to commodify the ‘essence of the dolphin’ as a therapeutic, and marketable, object. Dobbs associated problems with close proximity to dolphins. He considered this to be unacceptable in enclosures and increasingly unacceptable in the wild. In response he moved his therapeutic model from intimate encounters in the wild to a plastic dome with ‘dolphins’ represented as socio-natural hybrid objects encountered in transient forms.

These models: Smith’s ‘water play’; Nathanson’s ‘dolphin-stimulated attention-increase to enhance other therapies’; and Dobbs’ ‘unstructured wild dolphin encounters’, and ‘audio and visual representations of dolphins’, comprise the major historical roots of DAT evident worldwide in 2013. DAT programs use these models alone, sometimes combined, or with additions and modifications in dolphin facilities around the world. This socio-spatial analysis aims to develop an understanding of different constructions of DAT, its supportive theories and practices, as well as an understanding of the role of dolphins and the representations inherent in them.
Section Two: Mapping the Discourse of Dolphin-Assisted Therapy

Dolphin-Assisted Therapy: the challenge of definition

DAT is characterised in overly simplistic terms in many descriptions of it, across the discourse, simply as a type of animal-assisted therapy that utilizes dolphins in water (i.e., De Bergerac, 1998; Graham, 1999; Clark, 2007; Marino and Lilienfeld, 2007a; Ellison, 2010; Herzog, 2011; Bloomberg, 2012). This over-simplification does not acknowledge other types of DAT, those that include dolphins only as visual and/or sonic representations, without water. It does not differentiate between those that take place in various kinds of water environments: within built environments (pools); in an open ocean; in enclosed ocean shorelines; and (at least one) in a river (Andrade, 2011). Nor does it help differentiate between the variety of theoretical concepts drawn upon and their effects upon the many different types of DAT. This research aims to recognise the diversity of this type of animal-assisted therapy. In doing so it acknowledges both the developed and research-supported types of therapy as well as other means for improved human wellbeing achieved by incorporating dolphins into their practices based on non-evidence-based therapies. However, the broad range of therapies that include dolphins is not acknowledged here without critical analysis, a categorising of therapies into those with well-documented and successful application, based on empirical evidence gathered through scientific study, and those with less rigorous underpinnings. In this way it aims to construct a more comprehensive conceptual framework and understanding of DAT.

This section begins with a clarification of the definition of animal-assisted therapies, the field in which DAT is situated. It then addresses the question of why Dolphin-Assisted Therapy has been separated and excluded from the globally distributed network of animal-assisted therapies. This is followed by a description of the multiple practices that comprise DAT, including a table that maps the physical proximity and agency of dolphins as key variables. It then revisits the broad but inadequate description of DAT generally in use and opens it to include its many varieties. This is followed by an analysis of the problems this raises. Finally, this section concludes with a simplified, but inclusive, definition of Dolphin-Assisted Therapy.
What is animal-assisted therapy?

The presence of animals with humans as part of therapeutic care is of ancient origin. From animist beliefs in the moving spirits of animals that influence the body’s health for better or worse, to shamanism and its transference into and back from animal forms in the spiritual pursuit of healing, early human cultures considered animals to be an integral part of processes by which one attains a healthy life (Serpell, 2010). Animals have been participants in human cultural environments throughout the ages and have never been far from the places where humans have sought to improve life conditions for themselves and those they cared for. As early as the 1700s birds and rabbits were incorporated into designed therapies in England (Hooker et al., 2002). Psychiatric patients in Washington, D.C. were provided with dogs in 1919 to, presumably, give them companionship and the benefits of exercise (Hooker et al., 2002). The United States of America’s military used pet therapies for convalescing soldiers during World War Two for the same purposes (Hooker et al., 2002). Levinson (1964) first suggested formal research into the uses and effectiveness of animal assisted therapies after his own dog had attended therapy sessions he was conducting for children. The children responded in significant ways to the close proximity of Levinson’s pet, leading Levinson to theorise about, and to apply, the health benefits of interspecies agency.

In the 1970s, inspired in part by Levinson, animals were introduced to hospital settings and to nursing homes by psychiatrists (Corson et al., 1975; Mugford and M’Comisky, 1975; Corson and Corson, 1978). By the 1980s, pets (dogs, cats, birds, and fish, primarily) were more and more frequently found in these settings, where it was noted that patients had “improved physical, psychological, and social status [if] patients [were] involved with pet therapy” (Hooker et al., 2002, p. 18). Research in the 1980s showed that people with a companion dog had higher survival rates after heart attack, probably because of outwardly directed attention to the needs of the dog, exchanges of affection without the mental and emotional complications of speech, and alleviation of loneliness (Friedmann et al., 1980). Further studies confirmed that companion animal interaction is highly correlated with the lowering of blood pressure (Friedmann et al., 1983; Baun et al., 1984) and improved overall health and increased socialization (Messent, 1983).
Therapists and their animal assistants began purposefully transgressing cultural constructs of spaces, crossing former boundaries established to create ‘domestic space’ and ‘healthier, cleaner environments’ (Philo, 1998) that had excluded animals. Where clinical environments had been emptied of non-human agencies to the degree possible, some animals were brought back. As part of the ongoing process of “bringing the animals back in” (Wolch and Emel, 1995) in a literal sense, animals crossing into human spaces for therapy reflect broader cultural practices of greater attentions being paid to the positive values of closer proximities with other animals.

A literature review “focusing on the benefits of interacting with companion animals, including animal- and/or pet-assisted therapy” (Barker et al., 2003) of scholarly publications between 1996 and 2001 cites 84 articles. This number serves to indicate the growth and importance of this form of therapy and academic interest in it. Among the 84 articles, four focused on DAT, indicating academic acceptance of the place of DAT within the field of Animal-Assisted Therapy. A more recent academic compilation of research publications (Fine, 2010) lists 55 authors contributing over two dozen studies in the field of animal-assisted therapies. One of these authors (Coren, 2010) describes how, from only 20 animal assisted therapy programs in the United States of America in 1980, there were over 1,000 programs in 2000, with growth in numbers continuing at a similar pace today. Despite this growth in animal assisted therapy, the observation is made that

“the positive therapeutic value of animal [based therapies] continues to receive little recognition in mainstream medical literature, and, as a field of research, it is grossly under-supported by government funding agencies” (Serpell, 2010, p. 29).

DAT is a form of Animal-Assisted Therapy, as distinguished from an Animal-Assisted Activity (see Table 5.1). One of the largest animal assistance organizations in the United States of America, the Delta Society (now Pet Partners), defines Animal Assisted Therapy (AAT) as:

“a goal-directed intervention directed and/or delivered by a health/human service professional with specialized expertise, and within the scope of practice of his/her profession. AAT is designed to promote improvement in
human physical, social, emotional, and/or cognitive functioning.” (Delta Society, 2010, np)

This is contrasted with Animal-Assisted Activities (AAA), defined as:

“the casual "meet and greet" activities that involve pets visiting people. The same activity can be repeated with many people, unlike a therapy program that is tailored to a particular person or medical condition.” (Delta Society, 2010 np)

To make this distinction clear, the Delta Society devised a table:

<table>
<thead>
<tr>
<th>AAA</th>
<th></th>
<th>AAT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Casual &quot;meet and greet&quot; activities that involve pets visiting people</strong></td>
<td></td>
<td><strong>Significant part of treatment for many people who are physically, socially, emotionally or cognitively challenged</strong></td>
</tr>
<tr>
<td><strong>No specific treatment goals</strong></td>
<td></td>
<td><strong>Stated goals for each session</strong></td>
</tr>
<tr>
<td><strong>Same activity can be used with many people</strong></td>
<td></td>
<td><strong>Individual treatment for each patient</strong></td>
</tr>
<tr>
<td><strong>Detailed notes unnecessary</strong></td>
<td></td>
<td><strong>Notes on patient progress taken at each session</strong></td>
</tr>
<tr>
<td><strong>Visit content is spontaneous</strong></td>
<td></td>
<td><strong>Visit scheduled, usually at set time intervals</strong></td>
</tr>
<tr>
<td><strong>Visit can be as long or short as desired</strong></td>
<td></td>
<td><strong>Length of visit is pre-determined to best fit needs of patient</strong></td>
</tr>
</tbody>
</table>


Another kind of human-animal activity intended to support human well-being, broadly defined, is Animal-Assisted Education (AAE), a type of human-animal interaction not within the scope of this research (see Figure 5.1). AAE is the use of animals in teaching, whether in classrooms or otherwise, and can be for general education goals or for general or specific psychological purposes (Kruger and Serpell, 2010). This may include, for instance, ‘classroom pets’ intended to foster care and attention to others in children or animal care in prison programs.

Efforts to bring Animal-Assisted Interventions (see Figure 5.1), a blanket term covering AAA, AAT, and AAE, into the mainstream of health care are ongoing. Because they are generally understood to be part of Complementary and Alternative Medicine (CAM) they are thought of as not ‘evidence based’ and are not broadly accepted in mainstream medical practice. Efforts to redraw boundaries, to formally
certify and legitimate these kinds of intervention to enable insurance and governmental health program support is evident in a variety of ways. A contribution to this effort notes that the teaching of Animal-Assisted Interventions is established in “seven major teaching hospitals in the Boston area” alone (Palley et al., 2010, p. 200), as well as certification programs for Animal-Assisted Interventions therapists at Oakland University School of Nursing, University of Denver Graduate School of Social Work, Harcum College, University of Pennsylvania School of Veterinary Medicine, and the Virginia Commonwealth University Medical Center (2010, p. 200), among others.

![Diagram](attachment:image.png)

**Figure 5.1.** Animal-Assisted Interventions is the general field in which are found the overlapping fields of Animal-Assisted Activities, Animal-Assisted Therapies, and Animal-Assisted Education.

An emerging association, the International Association of Human-Animal Interaction Organizations (IAHAIO), is a global organization whose aim is to ‘promote research, provide a forum for sharing ideas, and to educate policy makers’ (IAHAIO, 2012). It lists thirty-four organizations among its members, and sixteen associate member organizations, all of which have hundreds, if not thousands of individual members (IAHAIO, 2012). Two of the most prominent groups in the IAHAIO, providing AAA, AAE, and AAT services with dogs, are the Delta Society and Therapy Dogs International, who have over 10,000 and 20,000 registered handler/animal teams,
respectively (Palley et al., 2010, p. 200). The drawing together of these organizations into a global network is a socio-spatial effect of a growing interest in the role of animals in human health. This indicates increasingly close proximity between humans, other species, and organizations for purposes of (human) health improvement.

Although DAT is ‘assisted therapy’ within the field of Animal-Assisted Interventions (as shown in Figure 5.1, above), its role in the field remains a contested one. Neither the Delta Society nor the IAHAIO list DAT programs among those that they recognise as therapy programs. Both organizations consider dolphins to be ‘non-domesticated animals’, and do not, therefore, meet their stated criteria for therapy animals. This raises the socio-spatial question, outside the scope of this research, of whether dolphins are domesticated when living within the built environment and therefore ‘safe’ for human interaction.

Proximity and The Many Practices of DAT

From watching, to touching, to being touched in non-physical ways, the proximities between humans and dolphins vary widely across the DAT discourse. A prominent therapy centre in the USA describes its DAT program in broad terms: “Individuals with special needs or illnesses work or play one-on-one with a trained therapist in the water with dolphins and in the classroom” (Hoagland and Hoagland, 2009, np). Here DAT involves shared space with dolphins in the water (close proximity) and non-shared space.

Another DAT provider, based in Turkey and operated by Russian staff, describes their program as

“… a medical-psychological complex consisting of diagnostic and correctional parts. The basis of the method is the ‘sonophoretic model’, when the dolphin acts as a natural ultrasonic sonar and a positive stimulation of patient's CNS [central nervous system] and organs takes place” (Batozsky, 2011, np).
This program describes dolphins, while in close proximity to the patient, producing physiological effects in internal space within the human body, crossing the skin boundary into organs and skin by means of sound waves (see Appendix F).

A dolphin interaction facility in Israel describes its program as

“…half an hour on the platform during training sessions and half an hour swimming with the dolphins … the child, accompanied by the permanent trainer, enters the dolphins' world, observes them, and according to the wishes of the animals, plays with and caresses them … some children learn to work by helping to do tasks behind the scenes for the dolphins, like preparing their meals”29 (Donio, 2010, np).

Here the child is ‘trained’ on the edge of ‘the dolphins’ world’, then enters it, into ever-closer proximity, while some children are ‘behind the scenes’ yet engaged in caring for the wellbeing of the dolphins.

An addiction therapy program in Hawaii does not interact with dolphins in enclosed environments. Instead it provides excursions to offshore sites where swimming among free-ranging dolphins occurs:

“…a unique Experiential Therapy program that interfaces our clients with wild Hawaiian Spinner Dolphins...HIR [Hawaii Island Recovery] believes an unscripted encounter with these extraordinary mammals has a positive impact on our clients and will support their recovery process”30 (Wille, 2011, np).

The patients and dolphins in the HIR program are ‘interfaced’ in an unscripted encounter, with, most likely, less proximity than in an enclosure due to being with free-ranging dolphins. Here the proximity of dolphins is not produced as part of a human management regime but rather it is facilitated by the therapist and sought by patients.

A well-known dolphin ‘workshop and encounter’ leader and author, Joan Ocean (1989; 1997), describes her and the dolphins global healing intentions:

“… dolphins are… interacting with us to encourage us to attain many life-enhancing qualities… in the hope that some of the behaviors and communications of the dolphins will inspire you to further develop them into healing modalities for people and our planet” (Ocean, 2009, np).
According to Ocean,

“The dolphins and whales are calling us into the ocean. They want to meet us, to introduce us to their world, and to swim with us into the unknown… They know how to access multiple dimensions. This means they are simultaneously experiencing life in the ocean and life in an ontological world of multi-level subtle realities… There are many wonderful adventures awaiting our entrance into the dolphin world” (2009, np, emphasis original).

Ocean’s assertion that dolphins are ‘calling us into the ocean…the unknown…a world of subtle realities’ describes not only crossing from the land into water, but also into an ‘unknown’ metaphysical realm, where physical proximity becomes irrelevant. Ocean’s approach to ‘dolphin healing’ is to provide group counselling in an informal style, and boat excursions to swim among wild dolphins, during a weeklong “Dolphin Connection Seminar” (Ocean, 2009, np), supporting each individual to discover and develop their own ‘healing modality’. Ocean’s seminar affords participants, in groups, moments of encounter with free-ranging dolphins, not as an ‘interface’ as in the HIR program but as ‘free-will encounters’ with close proximity represented as an expression of mutual goodwill. This is said to afford access to the ‘multiple dimensions of the dolphin world’.

Another position on the spectrum of proximity relative to ‘dolphin assistance’, in which a kind of affective non-representation of dolphins seems to be the intent, is taken by an “Industrial Engineer working in liquids manufacturing in the pharmaceutical industry” (Shelor, 2011b) who suggests to her customers to

“Choose the Type of Dancing Dolphin Assistance You Would Like … If you desire to connect with … the Dolphins … then simply roll on one of these essences, close your eyes, and experience the merging. If you are already in touch with these alternate realities, it will heighten and deepen your connection. If you are not, they will assist you in getting there” (Shelor, 2011a).

It is not clear from Shelor’s website whether the ‘roll-on essence’ has been produced by inclusion of any physical ingredients derived from a dolphin, or if these ‘essences’ are entirely qualitative. Here the distance between dolphin and human is great if understood in physical terms, yet it is described as more intimate than physical touch, as a merging with an essence of dolphin-ness, moving from proximity to unity.
This listing of the broad range of ‘dolphin assistance’ is not yet complete. In some constructions of DAT there is a total absence of living dolphins and may only include representation of dolphins by their sounds or as wall decorations or as business logos. For these therapists the dolphin’s presence, and thereby their ‘assistance’, is held in imaginary (affective) space by the therapist while performing therapy on, or with, a patient [this latter form of therapy is most commonly found among massage, chiropractic, naturopathic, or ‘energy’ therapists (see, for instance Bataliga, 2010; Cangemi, 2010; Hillis, 2010)]. In still others, such as the Dolphin Energy Club (Vaughn, 2013) of the Monroe Institute, representation in visual or audio media is absent, with only envisioned affective assistance from dolphins felt in psychological space by the therapist, who depends upon a metaphysical link to the ‘energy’ of dolphins that assists them in their efforts to “heal and assist others from a distance using guided imagery, Hemi-Sync, and energetic healing” (Mason, 2004, p. 159).

The proximity of dolphins is a thematic key to understanding the various constructions of dolphin-assisted therapies. The proximity factor will be used (below) as part of a conceptual framework constructed as a table to advance understandings of DAT, following a section describing the normative conception of what a DAT program entails.

A Typical DAT Program

Despite the bewildering array of therapies under the name ‘dolphin assisted’ described above, a discursive analysis of the techniques and practices represented most widely in public media and activist literature reveals a more limited description. In this researcher’s experience, when DAT is mentioned few people envision massage or energy therapists and their affective relations to dolphins or the use of ‘essences of dolphin’. Somewhere other than in these practices is where a more typical DAT program is constructed in the public, academic, and activist imagination.

Drawing upon years of experience observing DAT programs (Taylor, 2003, pp. 225-240) and this geo-historical analysis enables the author to construct a synthesized description of ‘the typical DAT program’. At many points in the following description
variations could be included. The intention here is to construct a general description to
acquaint readers with DAT’s most typical and widely represented practices.

The typical DAT program consists of two weeks of sessions, one per day, with the
weekend off. Ten sessions over two weeks has been determined by some (but not all)
therapists (Hoagland and Hoagland, 2013a; Nathanson, 2010) to be optimal for
numerous reasons, including cost, available time for the family, and the effort
required of the patient. The first day consists of an introductory session, enabling the
child and family to become familiar with the facility, meeting the therapy team and
meeting the dolphins, often not while in the water. The second day begins the practice
continued throughout the remaining time. It commences with the therapist and child
in a small clinical room where support materials are introduced. Because each child is
analyzed beforehand to determine his or her needs, developmental status, and
intended goals, materials and methods will vary. They may include physical therapies,
speech therapies, behavior therapies, occupational therapies or other approaches.

From the clinic/classroom the child and therapist move to the waterside, where a
therapy ‘station’ includes a platform that floats with its surface a few inches out of the
water. On the platform is a dolphin trainer (usually, but not always, with a container
of prepared fish to be fed to the dolphin during the session). The trainer’s role is to act
as a bridge between the dolphin and the child-therapist pair. Often an intern/assistant
is also present whose task it is to assist in various ways, to record observations and
sometimes to provide physical assistance in supporting the patient as they get into and
out of the water.

Therapeutic tasks are presented to the child while sitting on the floating platform and
may then lead to the reward of an in-water encounter, or the task may be undertaken
in the water alongside the therapist and the dolphin. If, for instance, language skills
are the focus of the therapy, an ‘alphabet board’ with letters and representative images
may be used to request verbal responses. Responses will be rewarded by opportunities
for touching, playing with, or swimming with the dolphin and therapist. If, for
instance, the goal for a child with cerebral palsy is to gain mobility, the task may be to
extend the arms while floating, supported by the therapist, and attempting to grasp the
dorsal fin of the dolphin to be pulled across the pool.
Each child is understood to be different from any other patient. Some are capable of being with the dolphin on their own as they go for a swim, the trainer and therapist paying close attention. Many patients require support while in the water (see Image 5.1, below). The dolphin plays many roles, depending on the patient. In some cases the dolphin becomes a playmate, retrieving tossed items, playing splash games, or may simply show acrobatic abilities to amuse the child. In other cases the dolphin will provide intimate contact opportunities, the child hugging, caressing, or holding onto the dolphin. After the 20-minute ‘platform/in-water’ session the child and therapist go to showers, then dressing rooms to change into dry clothes. They then return to the classroom/clinic to do a closing segment of the session, reiterating and building upon tasks and goals achieved on the platform and in the water. This may include activities such as puzzle work using dolphin shapes or art projects with dolphin themes, enabling the therapist to reinforce and ‘bridge’ the positive elements of the dolphin encounter into a more ‘real-world’ context.

Parents are usually not allowed on the floating platforms. They are encouraged to observe and capture video or still photos from a ‘public’ distance. This spatial arrangement is for several reasons: first, to separate carers and patients to enable the establishment of different patterns of behavior, that is, breaking former patterns of dependence; and second, to allow for observation and recording of sessions so that they can be reviewed in detail and at a later time. The encouraged ‘gaze’ by parents becomes a way to translate the close proximity of the living dolphin and the haptic encounter to the more distal home environment, perhaps half a world away where they are used to represent, and to the degree possible, to reconstruct the intimate proximities between therapist, patient and dolphin.
One feature of many DAT programs that differentiates it from many other forms of therapy is the purposeful teaching of parents and carers of how to extend and continue therapy at home. Many also include a day when siblings and parents are invited into the water with the patient and dolphin. There are daily briefings of the parents during the several weeks of daily sessions. Parents are, in some programs, offered workshop classes during their child’s sessions, helping them to learn techniques to use at home. In this aspect of DAT’s practice, families are brought inside the ‘circle of care’ as active participants in close proximity to the theoretical and practical processes of DAT.

Variations in DAT Programs
As detailed above, DAT programs vary widely. Among those that utilize the physical proximity of dolphins, some have been entirely, or mostly, based upon watching and swimming among dolphins (free-ranging or within human-built enclosures), with therapeutic processes (either before, after, or both) undertaken outside of dolphin
interaction time (e.g., Smith, 1988; Gelhausen, 1996; De Bergerac, 1998; Ocean, 2009; Hargitay, 2011; Parker, 2011; Wille, 2011). Whether it be Smith’s ‘water play’ after watching dolphins; Gelhausen’s, Hargitay’s, Wille’s, and Parker’s swimming sessions with various forms of therapy afterward; Ocean’s group swims integrated into a seminar format; or DeBergerac’s practice of watching dolphins from the deck of a boat with EEG readings before and after seeing them to demonstrate shifts in brainwave patterns to clients, these types of DAT do not require the intimate physical contact with dolphins utilized in other programs as the dolphin’s ‘intermediate proximity’ is thought by the providers to produce beneficial effects.

At another point on the continuum of DAT are swims with dolphins with no other therapy, assuming that their presence will have adequate beneficial effects, such as the Operation Sunshine boat trips (Connell, 2010). This construction of DAT, and those above, is supported by research on the positive psychological effects of dolphin watching (DeMares and Krycka, 1998; Servais, 2005).

These varied conceptions of DAT have produced a complex discourse, one that has not been previously clarified as to the relative degrees of proximity to dolphins employed in its many types, or as to the agency of dolphins as participants in its provision. The next section constructs a table in which DAT’s varied constructions are made more explicit.

A Typology of Dolphin-Assisted Therapies
The various practices of DAT, arising from its history (see Section One, above), demonstrate its growth from different theoretical underpinnings. DAT can be conceived of in different ways. One way is to place its various forms on a linear continuum according to the practices used by therapists as they incorporate the physical proximity and the agency of dolphins into their therapy. In Table 5.2 a spectrum of ‘degrees of bodily presence’, or proximity, and the relative agency of dolphins is presented. These describe various DAT practices from intimate bodily encounters unmediated by anyone between the dolphin and the human subject (at the bottom of the table) to practices where no dolphins or their explicit representations are visible (top of table).
The range of activities that include interaction with and direct contact with dolphins is to be found in the section of the table that includes numbers 9-13 (below). As indicated, these kinds of DAT do not always include visual or audio representations of dolphins, although some do. In some cases, poolside therapy sessions will use representations and observation, yet have no interaction or contact with a dolphin, particularly for patients with severe disabilities and the inability to enter the water. In eight of the thirteen varieties of DAT shown here there is no direct contact with a dolphin. Boat-based DAT that includes in-water activity may or may not include direct contact with a dolphin. In most cases it does not. The in-water, unstructured and unmediated interaction, at the bottom of the table, is part of this typology because it can appropriately be called ‘self-directed therapy’ if the swimmer has a therapeutic goal in mind.
<table>
<thead>
<tr>
<th>Type of DAT practice</th>
<th>Representation (sound or image) of dolphin used</th>
<th>Dolphins are present</th>
<th>Interaction (of some kind) with dolphin</th>
<th>Physical contact with dolphin</th>
<th>Dolphin agency (intention to assist)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Therapist envisions interaction with dolphin while doing therapy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Therapist provides dolphin video and/or sounds while doing indoor therapy</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Therapist interacts with dolphin (ocean or pool) then performs therapy</td>
<td></td>
<td>O</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Land-based dolphin observation</td>
<td>O</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Boat-based dolphin observation</td>
<td>O</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Boat-based tasks with dolphin observation</td>
<td>O</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Boat-based tasks with in-ocean dolphin interaction</td>
<td>O</td>
<td>X</td>
<td>X</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>8. Pool-side tasks rewarded by pool-side visual observation</td>
<td>O</td>
<td>X</td>
<td>O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Pool-side tasks rewarded by in-water dolphin interaction</td>
<td>O</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>11. In-water (pool) tasks rewarded by dolphin interaction</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>12. In-water (pool) structured activity among dolphins</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>13. In-water (pool or ocean) unstructured interaction with dolphins</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>O</td>
<td></td>
</tr>
</tbody>
</table>

Table 5.2 Degrees of dolphin presence and agency during DAT, from intangible to intimate. X indicates regular occurrence, O indicates occasional occurrence. This table maps the spectrum of DAT modalities in relation to the presence of dolphins and their proximity to patients, and the intentional assistance by dolphins (defined here as agency). Tasks (in the left column) are the therapeutic activities required of the patient before or after interaction with a dolphin. In the most distant ‘encounter’ (No. 1), patients have no contact with dolphins or their images or sounds, and receive therapy that has been influenced by dolphins, according to the therapist. At the other end of the spectrum patients and dolphins interact in water with no mediation by anyone else (No. 13). ‘Interaction’ is here considered to be mutual visual contact and/or proximity (within a body-length). Pool-based interaction is considered here to be more intimate than boat-based due to length of encounter, proximity, repeatability, and relatively diminished safety concerns. In-water interaction is understood here to be more intimate than pool-side interaction due to the increased haptic nature of the contact. Intentional assistance (agency) by dolphins includes participation in therapeutic sessions whether or not food rewards are included.
The complexity of the conceptual framework of dolphin-assisted therapies indicated here is an issue unacknowledged across the discourse of DAT, leading to varied representations and claims and counterclaims that are argued from very different perspectives. This typology serves to identify DAT as a field of diverse practices and not a monolithic, single practice.

The ‘Mainstream Model of DAT’

This research focuses on the various DAT models that include well-established therapeutic methods in a collaborative setting in which live dolphins in water are participants. It sets aside (but does acknowledge) those types of DAT that: envisage or utilize the ‘essence’ of dolphins; depend upon seeing or interacting with dolphins by a therapist without the presence of a patient; depend upon seeing dolphins from a distance; consist of swimming near dolphins without the application of widely-recognized and well-researched therapeutic techniques. In other words, ‘mainstream’ therapies, such as physical therapy, speech therapy, behavior modification therapies, occupational therapies, and other such practices validated by extensive research and utilised in combination with the presence and cooperation of dolphins are conceptualised here as the ‘Mainstream Model of DAT’.

This model is constructed so as to include those types of DAT that involve direct interaction with dolphins, either at poolside or in the water, and to include either stimulation by, or the reward of, dolphin interaction including contact. Inclusion of these factors follows the definition of AAT in Table 5.1 (above, with the problematic exception of the inclusion of a ‘domesticated animal’). These practices are consistent, repeatable, in a safe environment (free from waves and other ocean factors that require agility, as encountered in boat-based therapies), and include interactions with a dolphin in ways that enable and develop a relational experience. The Mainstream Model types of DAT are found in Table 5.2, numbers 8-11 (above). This is not intended to de-legitimate other types of DAT, but does enable a focus on the most significant types of DAT from the perspective of scientific understandings. ‘Non-mainstream’ types of DAT will re-enter the discussion in chapters 6 and 8, where the oppositional arguments to DAT are considered.
Toward a definition of Dolphin-Assisted Therapy

A definition of DAT, even if tentative at this point, is necessary to enable a critical analysis of the ‘mainstream model’ of dolphin-assisted practices.

To begin, a brief analysis of the linguistic structure of the name identifies that it is ambiguous, since there are approximately 36 species that are in the taxonomic family of ‘dolphin’ (Carwardine, 1995). As mentioned in chapter 1, most DAT programs work with Bottlenose Dolphins (Tursiops truncatus or Tursiops aduncus) in their programs. While this is not universal (a DAT program in South America engages with habituated, but wild, pink river dolphins called Boto [Inia geoffrensis] for instance), it is the most popular dolphin for DAT programs for several reasons. They are highly adaptable and reproduce and survive well under human care, having done so since the late 1930s; they are not an endangered species, and thrive in great numbers in all but the coldest oceans, worldwide (Carwardine, 1995; IUCN, 2012); they are readily trained, exhibiting high intelligence, a caring ethos, and have other useful traits (see Taylor, 2009); as an inshore form (Tursiops aduncus) they inhabit shallow coastal waters and have historically been relatively easy to capture and to adapt to relatively shallow constructed environments.

The influence of popular media, beginning in the early 1960s with books by Dr. John Lilly (1961, 1967), and with films and television programs such as ‘Flipper’ (Tors, 1964-67 and subsequent 'remakes' and TV programs) and the recent Dolphin Tale movie (Smith, 2011) has contributed to the construction of an iconic socionatural hybrid: ‘the dolphin’. It is bottlenose dolphins who have been represented as ‘the dolphin’, a socionatural construction of a ‘liminal dolphin’ that cannot be overlooked in this analysis. The influence of the persistent ideation of dolphins as being Flipper-like, both in visual presentations and as utopian heroes who assist humans has been used by DAT programs to their advantage.

The middle word, ‘assisted’, refers to the actuality of the agency, that is, the intentional assistance, of dolphins (see Taylor, 2009, Appendix One, p. 101 for a review of literature on the capabilities and agency of dolphins). These dolphins act not only as co-workers with therapists and patients, but have been known to adjust
Techniques mid-session, testified to by therapists, trainers, patients, and informed observers (see chapter 7, and Smith, 1988; Tof, 1998; Powell, 2001; Antonioli and Reveley, 2005; Trone et al., 2005).

The hyphen in the name indicates an interactive relationship, a linkage, a co-construction in simultaneity, a timescape (see Adam, 1990, 1995, in Crang, 2005, pp. 213-216) that signifies the central notion of DAT as a relational practice.

And finally: therapy, or methods applied to alleviate symptoms or conditions that limit one’s capacities (Segen, 2006). Whether any type of DAT that includes the presence and agency of dolphins is actually therapy is generally not contested, with several notable exceptions (Marino, 2007d; Herzog, 2011; Marino, 2013) that call for an interruption of this analytic narrative.

What is Therapy?

An important factor for a genealogy of the discourse of DAT is the varied constructions of the notion of therapy itself. Close examination of the semantics in these constructions reveals differences such that arguments built upon these notions diverge widely from each other.

Two prominent academic/advocates who oppose DAT state:

“DAT is a practice whereby sufferers of certain clinical disorders are subjected to direct, supervised contact with confined dolphins. DAT practitioners claim that this practice provides treatment for … various conditions” (Marino and Lilienfeld, 2006, p. 1).

This representation of DAT is only partly accurate. Within the Mainstream Model the contact with dolphins in therapy programs is supervised and typically dolphins are in controlled spaces. However, only a few programs, those outside the Mainstream Model, suggest that contact with dolphins alone ‘provides treatment’ (see, for instance, Kemaloglu, 2012, np).

One of the above-referenced authors, Marino, uses an analogy referring to pre-scientific superstition to construct a representation of DAT when stating that
“Just like the snake oil of yesteryear, DAT is a modern-day quack-medicine version of dolphin mythology…for desperate people persuaded that dolphins dispense a special healing quality that sometimes even modern medicine cannot match” (Marino, 2011, np).

This representation of DAT does not acknowledge the role of evidence-based and widely accepted therapies being applied in practices that depend upon close and cooperative proximity to dolphins.

A PowerPoint™ presentation posted online entitled “Is DAT Therapy?” concludes by saying “No…DAT should be terminated” (Marino, 2007d, np). This conclusion draws upon a definition of therapy as “providing or assisting in a cure” (2007b, np). Others might disagree, arguing that treatment of a disorder by seeking relief of symptoms rather than expectation of a cure is a widely accepted form of therapeutic endeavor. Medical dictionaries list hundreds of forms of therapy for the alleviation of symptoms without mention of cures, using a definition such as:

“Therapy: A general term for any form of management of a particular condition; treatment intended and expected to alleviate a disease or disorder; any technique of recovery, which may be medical, psychiatric, or psychological” (Segen, 2006).

Similarly, a therapist at the Curacao Dolphin Therapy Center (CDTC) defines the therapy provided there in relational terms, as:

“…something that helps people with special needs, in whatever way, to increase their quality of life. That's the purpose of therapy. To make things better, normal, or in what direction it is you need to work: speech, or physically, or if it helps someone to walk, or to be more aware. That's also therapy. I would say it increases the quality of life for somebody who has special needs” (Mary, CDTC therapist interview, 2011).

Families of DAT patients concur, holding a relational view drawn from the intimate and personal spaces of DAT: those interviewed at the CDTC have their own views on what constitutes therapy and its role in their lives as something that may approach but not close the gap between disability and the ‘typical’ conditions of a child. One family member points out that “no matter what I do, I can't cure my child. It is just the way it
is until I die or until she dies…[the therapy] changes the children but they stay disabled” (Kraus family interview, 2011).

Analysing how therapy is constructed across the DAT discourse it is evident that different concepts are used to describe the conditions being addressed by its practices. A description from the oppositional portion of the discourse, such as: “Practitioners [of DAT] claim that…individuals are able to overcome the symptoms of a variety of mental illnesses” (Anestis, 2009, np) makes reference to ‘mental illness’ as the conditions treated. This is not congruent with the disabilities most commonly addressed in DAT. While a few mental illnesses have been effectively treated by DAT (Antonioli and Reveley, 2005; Schenk et al., 2009), the great majority of DAT sessions are for children with disabilities (with either genetic, accidental, or environmental origins), not mental illness.

The blurred boundaries and varied conceptions of the field of DAT indicated in the typology discussion earlier in this chapter complicate its understandings. Critics of DAT in the public discourse employ notions of it that are not drawn from close observation of its practices or the results that are considered to be of importance to parents, carers and clinicians. Statements are made in the popular media such as “Captive swim programs are basically a scam. Often they're promoted as being therapeutic for conditions like autism. Parents pay thousands of dollars for this “therapy,” believing that a dolphin might be able to bring these children out of themselves. But no such results have ever been demonstrated” (Mountain, 2011, np).

In an interview of the parents of a child with autism undergoing DAT at the CDTC, a reference to ‘bringing out’ was also made:

“Our daughter is autistic and we're not going to heal her. They're not going to heal her, but if we see some very positive items in her development, then we are more than happy, more than happy. Of course the people who don't know very much about this may think she's going to be healed, going to get better. We just want to see how far she can go, for ourselves. We want to bring out what's inside the child. They have so much capacity inside and we just want to bring this out” (Rutger family interview, 2011).
These two views about the possibilities for crossing psychological and behavioural boundaries inherent in autism, which in any case is widely characterised as an as-yet unsettled ‘spectrum’ of conditions (see, for example Volkmar et al., 2009), exemplify the sociospatial distances between carers and oppositional commentators. For parents who are daily confronted by autism, any movement toward or across the barriers that prevent the attainment of innate ‘capacities’ is important. A commentator, relying on problematic and inconclusive research, and without drawing on observation of actual DAT sessions, asserts claims inconsistent with the realities of families who find DAT to be effective.

A prominent activist, counselor, and scholar in the field of Disability Studies, and a person with autism, describes the role of therapy in the lives of persons with disabilities this way:

“…the important issue is that autistic people should be assisted in growing and developing into more capable autistic people, not pushed to become like non-autistic people” (Sinclair, 1998, np).

A Definition of Dolphin-Assisted Therapy

As this analysis presents, a fully inclusive definition of DAT is problematic. Given that its theories and practices differ along a continuum, it cannot be meaningfully limited to a narrow definition, but it can be understood generally:

*Dolphin-Assisted Therapy is a field of therapies that are intended to enhance human well-being. In some way they each include dolphins and/or their representation.*

Despite the vagueness of this definition, it enables future research to engage in a discussion that includes many of the differences embodied in this field of interspecies practices.

Chapter Summary

This chapter has traced a geo-historical account of the development of key theories and practices of DAT by documenting their socio-spatial connections and divisions. It produced a typological ‘mapping’ of the many types of therapy in which dolphins are
said to provide some assistance. For this and future research a ‘mainstream model’ has been identified within this field of therapies that describes those therapies in which dolphins act in collaboration with human therapists who are using standardized, well established therapeutic methods in close proximity to dolphins in and near water. Other types of DAT are not included in this model because they depend upon onto-epistemological beliefs not open to scientific research.

This chapter has produced a conceptual framework for understanding of the various types of DAT and has generated a definition that, while broad, does enable further research into its various types and practices.
Chapter Six: Discourse Analysis

The Discourse of Dolphin-Assisted Therapy

This chapter is a Foucault-inspired discourse analysis (drawing also on ANT) whose unit of analysis is Dolphin-Assisted Therapy, bracketed to include only those types of DAT identified as the ‘mainstream model’\(^\text{35}\). DAT is a complex topic comprised of multiple theories, ethical constructs, and practices. It is an unstable network of varied agencies and actors. The ideas within the discourse on DAT that support it are the notions that dolphins, the water environment in which they live, and the work of skilled therapists and trainers can have a positive effect upon humans seeking improved lives. However, as noted in chapter 5, among those who support DAT there are significant differences in theories and practices. The oppositional part of its discourse is comprised of various types of textual representations. Non-academic activist and popular texts draw upon some critical academic studies and these non-academic texts have significant bearing on how DAT is understood, utilized, and legislated. For these reasons, the discourse under analysis is not limited to academic texts. This analysis also uses some quotes from interviews undertaken for this research for purposes of contextualization.

This analysis is Foucault-inspired in that it investigates the use of language in securing the legitimacy of regimes of truth and their contradictions in human culture, built upon practices of representation (Jacobs, 2006, p. 143). Thematic coding of texts about DAT, both supportive (from academic and popular media) and oppositional (found in academic literature, popular media, and protectionist publications) has revealed two dominant geographic themes. These are the socially constructed nature of DAT environments and how ethical theories are embodied in its varied spatial constructions. The first theme is divided into three sub-themes: the physical environments of DAT; the places where DAT environments are situated; and how proximity produces varied understandings among those who experience DAT
environments. The second theme of geo-ethics and captivity focuses on five sub-themes, those of diminished life span, diminished choice, diminished life experience, overwork, and loss of freedom. Some aspects of the discourse of DAT have been analyzed in the genealogical discourse analysis in chapter 5 and are not addressed in this chapter.

Environments of Dolphin-Assisted Therapy

DAT is dependent upon specific environments in various ways. It takes place in and beside bodies of water; the qualities of the water must be supportive of the physiological requirements of dolphin bodies, i.e., salt water; some DAT programs occur in uncontrolled ocean environments, while most DAT programs (from the available evidence) occur in constructed and controlled water environments. In addition, various paradigms affect guidelines for the design, placement, and operation of these environments. Belief systems derived from science differ significantly from those derived from less rigorous knowledge regimes, and these differences, manifest in ideas about the ethics of interspecies encounters and the types of encounters useful for therapy play a large part in the representation of environments for DAT. An analysis of the environments in which DAT occurs and how these affect it provides a framework for understanding the contested spaces of this field of practices.

Physical Environments

The Whale and Dolphin Conservation Society (now Whale and Dolphin Conservation), a leading opponent of DAT, describes DAT facilities variously as: “tanks or sea pens”, “small, barren enclosures [that impose] sensory deprivation…on dolphins”, “an artificial environment where [dolphin’s] behaviour is controlled and subdued by humans”, and “a confined space [where dolphins are] subjected to forced interaction with humans” (Brakes and Williamson, 2007). A prominent critic describes the environment for DAT as “a tank with a 400-pound wild animal” (Marino, in Clark, 2007, p.2). Another organizational opponent of DAT describes it as “… an environment devoid of natural currents, live fish and places to explore” (Marine Connection, 2011).

Analysis across the oppositional discourse reveals that it tends to employ broad
generalizations that overlook the varied settings, and qualities, of DAT facilities (see below). Some details in these descriptions are acknowledged as accurate in DAT’s supportive discourse, especially among those who express concerns about the development of DAT facilities and the improvements that are still being made as a consequence (Dolphin Aid, 2011). Dilts’ (2008) otherwise supportive research notes, for instance, that the size of enclosures may have limiting effects on the efficacy of DAT:

“The theme of the environment in which the dolphin lives is important. In order to provide therapeutic levels of interaction, a certain amount of physical space could be needed.” (2008, p. 38).

Some supportive commentators and programs use and advocate the use of “natural lagoon settings” (Nathanson, 1998a, p. 31), a “natural habitat” (Dolphin Aid, 2011, p. 12), “Spacious open seawater lagoons” (CDTC, 2013a). A long-established facility in Florida describes itself as “a natural setting” (IDC, 2013), which are pools adjoining a canal open to the sea. A program in Israel uses “a closed sea area where a group of dolphins…lives” (Donio, 2010, np), adding that “A year and a half ago, we opened two underwater passages, open 24 hours a day, through which the dolphins have unlimited access to the sea” (Donio, 2010, np). Some DAT programs do use ‘barren enclosures without natural currents, wild fish or places to explore’. Representations of these programs and research on them have not commented on whether this presents an environmental or ethical concern for the providers (Lysenko et al., 2000; Trompisch, 2007; Ilyukhina et al., 2008; Chia et al., 2009; Dietrich et al., 2009; Schenk et al., 2009; Lael, 2010; Batozsky, 2011; Kemaloglu, 2012; Lukina, 2012; Weitzmann, 2012; Chuprikov et al., 2013). The differences in physical environments for DAT are a product of the complex and multiple socio-spatial understandings and constructions in which the field is situated.

Socio-spatial Constructions of DAT’s Environments
Geographies of health, politics, economies and others would need to be employed to fully analyse the complex socio-spatial constructions of DAT. This research is limited to animal geographies, which trace the effects of animal bodies and agencies and their social constructions through the spaces of DAT. These spaces include various places
and communities and their various interconnections.

Places where DAT programs exist are relatively few when compared with the many hundreds of built environments containing dolphins. As one academic points out, “There are hundreds of dolphin centers located in all parts of the world that do not offer DAT services [and] very few centers that do offer both dolphin encounters and dolphin assisted therapy” (Dilts, 2008, p. 85). Nathanson (2007) notes various factors limiting DAT environments, with respect to the social limitations that the establishment of a DAT facility encounters, including legislative restrictions on dolphin enclosures, unstable political regimes, lack of adequate medical care, and inadequate visitor infrastructure. These socially, economically, and politically produced conditions limit where DAT facilities can be just as much as access to warm water and a tropical climate limit their placement. While self-contained enclosures that may be far from an ocean can be built, they require overcoming significant technological challenges as well as campaigns against their establishment presented by animal protectionists based mostly on ethical considerations (see, for instance, Balcombe, 2007; Marino, 2007).

Other environmental factors affect the location of DAT facilities. One of the originators of DAT, who had rejected working with dolphins under human care, describes her unsuccessful search for a place to carry on her research: “I explored the various venues available for projects with wild dolphins, but we rejected site after site for ongoing research because of the dangers presented by people” (Smith, 2003, p. 246). These dangers to wild dolphins, presented by people, were described as “chasing them with boats and polluting their water with noise and garbage” (2003, p. 246). Places suitable for DAT are relatively rare under current conditions, whether constructed environments or ocean environments, and thus the suitability of a physical environment is in part restricted by the social conditions of the places where DAT occurs.

Without citing evidence, an academic opponent of DAT states: “Large numbers of these programs operate in countries throughout the world, including Mexico, the United States, Israel, and Russia” (Humphries, 2003, p. 1). This was echoed by
another academic opponent of DAT when asked in a podcast where DAT programs are, describing them as

“… all over the world. There are several facilities in Florida, in Hawaii, in the Bahamas, but there are also facilities all over Asia, all over Europe, the Middle East, South America, Dubai, I mean they are literally popping up everywhere” (Gregg and Marino, 2008).

It is unclear what number actually comprises a ‘large number’, or what ‘all over’ and ‘everywhere’ means. No DAT facility has ever existed in Hawaii, and only one DAT program has ever existed in Israel (DolphinReef, 2013). Further, the second statement reveals a lack of distinction between dolphin-centred therapy programs, of which there are few, and facilities that offer SWTD (Swim-With-The-Dolphins) programs.

The unacknowledged differences between DAT programs and SWTD facilities is where much, but not all, of this misrepresentation lies and indicates a need for clarity and distinctions between different social constructions of dolphin-human interaction to adequately interrogate the meanings and intent of each kind.

The confounding of SWTD programs with Dolphin-Assisted Therapy programs is a significant factor in the representation of DAT by those who oppose it. Some academic critics of DAT find it difficult to distinguish the difference:

“The pervasiveness of DAT is obscured by the fact that it is often not readily distinguishable from the popular “swim-with-dolphin” programs that permeate the entertainment and tourism industries” (Marino and Lilienfeld, 2007a, p. 2).

The lack of clarity in the oppositional discourse complicates its representations of these different activities. The distinction between SWTD programs and DAT is made clear in Curacao: the Dolphin Academy is a SWTD entertainment and education facility. As discussed in chapter 7, the dolphins there do not participate in therapy, and only interact briefly with visiting humans, mostly tourists. Adjacent to the Dolphin Academy, in distinctly different, albeit adjoining constructed enclosures, the Curacao Dolphin Therapy Center program is conducted with a separate group of dolphins trained for a different kind of interaction (see Images 7.3 and 7.4). The oppositional discourse makes little distinction between these kinds of activities and tends to include all dolphin interactions in constructed spaces, regardless of therapeutic intent, in its criticism of DAT.
In addition to the blurring of distinctions about the constructed environments where the mainstream model of DAT is practiced, tourism on boats to watch dolphins in some places can include swimming among them and, as described in chapter 5, these experiences are sometimes portrayed as therapeutic. Some companies market these encounters as ‘uplifting experiences’ (Dobbs, 2006; Faith, 2011; St.Germaine, 2012; Sprinkles, N.D.) with descriptions such as:

“Dolphin Dimensions [a therapy program in Mozambique] offer a unique dolphin-assisted therapy retreat that explores the phenomenon of natural healing with wild dolphins in their natural environment. Over and above the purifying upliftment and joy that comes from swimming and interacting with dolphins, dolphin sounds are known to have healing effects” (Bloomberg, 2012, np).

The Dolphin Dimensions program, similar to others, is constructed by invoking ‘nature’ and ‘wildness’ alongside a reference to a scientific hypothesis (see Appendix F) to construct a version of DAT independent of built environments, yet still dependent upon circulations of as-yet unstable human knowledge. In doing so, some proponents of DAT add to the complexity of its socio-spatial constructions.

There are other conceptions of DAT outside the mainstream model that add to its complexities. The entirely constructed environment that seeks to create a ‘virtual dolphin experience’ described in chapter 5, Dobbs’ ‘Dolphin Dome’, is a multi-media projection system putting images and sounds from dolphins, along with music and guided meditation, onto and inside a small, soft, domed space (Dobbs, 2000a). Dobbs’ Dolphin Dome is intended for special-needs children, or anyone in need of some “Dolphin Dreamtime” (Dobbs, 1992, 2000a). In an interview, he describes the Dolphin Dome Project:

“… research is being carried out into electronically replicating the benefits of dolphin interaction … the dome will simulate and investigate [sic] the physical and psychological effects experienced during human-dolphin interaction, without using captive dolphins. … It is undeniable that dolphin healing has a powerful effect on the human psyche,” says Dr. Horace Dobbs... “The ethos of the Dolphin Dome Project is to treat the whole family so that the benefits then get passed back to the child again. The other advantage of the dome is that
severely disabled children who cannot be treated in water can be reached – and you won’t have to travel to Florida.” Eventually though, Horace predicts The Dolphin Dome Project will have a big impact on medicine and that treatment will one day be available privately or on the NHS [National Health Scheme]. Will it be as good as the real thing? Horace is optimistic. “Our aim is to try and identify the essence of the benefits humans receive from dolphins and we believe it will be an improvement on the original concept.” (Pearce, 2011)

Dobbs’ lengthy comment is included here because it brings to light some key issues embedded in DAT’s constructions, across (most of) its different practices and which are of relevance to the topic of this thesis. These are: captivity; the expense and difficulties of long-distance travel accompanied by children with sometimes severe disabilities; the questions surrounding insurance coverage for DAT. Whether or not technological replication of dolphin contact can be accomplished, and whether humans can ‘improve on the original’ notion of being in close proximity to living dolphins, such as Nathanson’s TAD project described in chapter 5, lies outside the scope of this research. Some of these topics will be explored in chapter 7, using interviews with DAT participants to analyse them. These issues, and how they are reflected across human-animal relations, identified here as the spatial constructs of enclosure, proximity, interspecies ethics, and the meanings and values to be found in collaborative interspecies work, will be discussed in chapter 8.

The oppositional academic discourse draws upon research conducted outside of the environments where DAT is practiced. Opponents do not utilise field methods that include observation of DAT sessions or visiting places where it takes place or interviewing providers or participants. Analysis of DAT by key academic opponents (e.g., Humphries, 2003; Brakes and Williamson, 2007; Marino and Lilienfeld, 1998, 2007b; White, 2007; Fiksdal et al., 2012) has mostly been analysis of the methodologies and methods used by DAT researchers, rather than close observation and analysis of situated facilities, programs, or participants. Distal information about DAT – representations in texts derived from theoretical analysis – is utilised in these academic critiques of practices taking place in intimate, proximal spaces. Nathanson, in a reply to a critical analysis of his research, argues that the analysis was comprised of distal, generalised knowledge, abstractions limited by the lack of proximal
knowledge about “real treatment settings that help real children” (1998b, p. 201, emphasis original). His comment underscores the point that distal analysis of proximal knowledge cannot reflect in full the lived experiences of DAT’s practices and participants.

Research projects that are reviews of research methodology used in DAT studies are necessarily and appropriately distal in nature, constructing generalised conclusions about how some DAT research is done. However, conclusions are sometimes drawn about DAT and its effects in the lives of persons with disabilities and their families in these projects that go beyond critiques of methodology. Arising from different epistemic ‘spaces’ and producing undue conclusions, these conclusions have been appropriated into activist campaigns, disseminated in public media, and have taken on different meanings in statements such as “there is absolutely no evidence for DAT’s therapeutic effectiveness” (Marino, 2013). Oppositional representations in the influential public media do not make explicit the degrees of proximity to DAT’s practices employed by DAT’s opponents to reach its conclusions. As a result the representations of the environments, theories, practices, and experiences of DAT vary widely between the supportive and oppositional dimensions of the DAT discourse.

In summary, there are many types of environments in which DAT takes place, some of which are a product of geo-physical conditions that can also be affected by political and other social processes. Complicating the discourse is a lack of clarity about the ‘borders’ between DAT and other types of dolphin-human interaction. Research on DAT has been analysed and found to be in need of greater rigour. These findings have been appropriated without representation of their epistemological sources and used to affect the ‘knowledge environment’ of the discourse. Such socio-spatial constructions of DAT have polarised the discourse between its supporters and its opponents.

Geo-ethics and Captivity
Analysis of the discourse of DAT reveals the emergent and central theme of captivity. The oppositional part of the discourse constructs much of its resistance to DAT upon ethical arguments against dolphin captivity. An analysis of DAT’s entire discourse is better understood by understanding the questions surrounding captivity itself. In this
section the geo-ethical challenges to, and support for, the captivity of dolphins for the purposes of therapy is analyzed for its socio-spatial aspects.

The range of ethical challenges presented by the oppositional discourse to dolphins providing experiential therapy are informed by concerns about captivity, and can be understood as being based upon notions of:

1. Diminished life span
2. Diminished choice
3. Diminished life experience
4. Overwork
5. Loss of freedom

(compiled from various sources. See, for example, Rose et al., 2009; Zamir, 2006)

**Diminished life span**

Critiques of dolphin captivity, whether for dolphinarium display and/or research more generally, or specifically for purposes of DAT, make claims that dolphins live diminished lifespans in spaces where they are under human care (Johnson, 1990; Rose, et al., 2009; Marino and Frohoff, 2011). However, Rose, et al. state:

“… studies indicate that captive bottlenose dolphins live as long as and have the same mortality rates as their counterparts in the wild [but] the scientific community has been reluctant to draw conclusions about the mortality patterns of cetaceans in captivity. It maintains that the limited data sets both from wild and captive populations make it impossible to determine definitive differences in mortality and life spans… In the end, the arguments of the scientific community dismissing life history comparisons between wild and captive marine mammals are in many ways irrelevant” (Rose et al., 2009, pp. 42-44).

The same report goes on to conclude, in a photo caption: “In the wild, dolphins face many threats. In captivity they do not, yet at best they live only as long as in the wild.” (Rose et al., 2009, p. 44). This admission that captive dolphins live as long and have similar mortality rates as wild dolphins problematises the animal protectionist position. The attempt to dismiss it by suggesting that the many thousands of hours, and the teams of experts who have spent years studying these issues have produced
only a ‘limited data set’ so that the evidence cannot be ‘definitive’, and is ‘in many ways irrelevant’ is not convincing.

The argument has been made that dolphins living in captive environments should live longer, but don’t, therefore, captivity is ethically improper. The argument is:

“…cetaceans should experience vastly improved survivorship profiles… when exposed to modern veterinary care and safety from natural and human-caused hazards. Yet this has not happened for cetaceans, even after decades of captive maintenance.” (Rose et al., 2009, p. 44)

Due to the global spread of interest in cetaceans by the general public and its “massive economic contribution [in] communities around the world” (O’Connor, 2009, p. 8), support for the rapid development of aquarium environments in which they can be seen and their lives witnessed, and in most cases interacted with, has been increasing (Couquiaud, 2005). With economic success has come rapid development of technologies of care. With the advent of portable ultrasound machines and other technologies suitable for use at poolside, important gains have been made in diagnosis and treatment of cetacean illnesses. Analysis of blood samples is routine in the great majority of dolphin facilities, looking for changes that might indicate otherwise undetectable health problems. Detailed records are kept of the intake of food by each dolphin, which has proven to be a reliable first indicator of health problems, and most facilities supplement the fish dolphins are fed, which is equal in quality to that eaten by humans, with vitamins to ensure adequate nutrition (Couquiaud, 2005, pp. 371-381). Analysis indicates that dolphins now live as long or longer in human managed spaces as they do in the wild, in many dolphinariums (see Demaster et al, 2013). Here natureculture becomes part of the vital existence of a relatively small number of individuals of a non-human species, enabling different lives to be lived.

**Diminished Choice**

The claim that decent consideration of the amount of choices that a dolphin can make in the wild should guide the ethical choice to not capture dolphins, or to keep them in captive situations (White, 2007; Marino and Frohoff, 2011), is problematic. Only recently have the choices, or agency of dolphins (Taylor and Carter, 2013) been a
topic of academic study, where it has been noted that “the choice expressed by
dolphins to interact with humans is under-acknowledged” (2013, p. 9).

Popular press and activist representations have held the view that dolphins do make
choices and that these choices should be honored. As apparent and obvious as this
may seem, dolphin agency is a contentious topic, leading into conflicting notions.
Confusing statements about dolphin agency are common, with statements such as:
“Dolphins are not scavengers. When wild-caught, they must learn to eat dead fish. If
they refuse, they may be force-fed. If they continue to starve, they may be released to
an uncertain fate” (Rose et al., 2009, p. 24), leaving readers with a confused narrative.
Here a dolphin who refuses to learn a key skill for survival in a captive environment
might be ‘released to an uncertain fate’, begging the question of whether fate is not
always uncertain. It leaves open what the role of choice has played, manifest as
‘refusal’, and whether choice has, in effect, been diminished in this situation. The
capacity for choice cannot be argued to have been reduced, so the variety of choices
available seems to be the concern.

No research has shown that having a wide variety of choices being available is
imperative for wellbeing of non-human animals. The example above could be
understood instead as the expression of the agency of the dolphin to choose resistance
to a variety of things, from ‘dead’ food, to being provided food by a human, to eating
in a controlled space, to reasons only a dolphin can know. In any case, the capacity
for choice has not been shown to have diminished. That this is characterized as a
transgression, a resistance to a human conception of ‘species appropriate behavior’,
reveals the constructed nature of such representations and their lack of
acknowledgment of the agency of dolphins.

**Diminished Life Experience**

Whether dolphins experience a ‘diminished life experience’ when living in built
environments under human care is a dimension of a dolphin’s life that is difficult to
analyze. Humans can only partially understand the life experience of a dolphin. The
continuity that humans and dolphins share, as mammals, provides limited but not
insignificant possibilities for mutual understandings (Delfour, 2006; Herman, 2012).
The potential for naïve anthropomorphism is high where dolphins are concerned, with
popular representations of them having infiltrated much of the discourse of human-dolphin interactions (Bryld and Lykke, 1999; Fraser et al., 2006). Critical anthropomorphism (Burghardt, 2007), which allows for limited parallels to be drawn between human and non-human animal experiential realities, offers a way to analyze the gap between human and dolphin experience. By referring back to social constructionism, the paradigm in which this research takes place, “an approach that examines ideas which may appear to be natural and the norm to those that accept them, but in reality is an invention of a particular culture or society” (Johnston, 2009, p. 326), and by applying critical anthropomorphism, analysis of a dolphin’s life experience becomes more possible.

It has been assumed in oppositional arguments in the DAT discourse that the life experiences of dolphins are diminished when they are in built environments. This is represented as a displacement from their ‘natural’ state, and its origin and effects are a geographic problem: they are not ‘placed’ in an appropriate location.

Such arguments contrast a dolphin’s experiences in a built environment and those of free-ranging dolphins. This is often done by citing the distance a wild dolphin ‘normally’ swims each day: “Wild dolphins swim long distances each day foraging for food, mating and interacting with other pod members in large social groups” (Curtin and Wilkes, 2007, p. 136) and “in the wild, [they] do not have any boundaries on their territory. Bottle-nose dolphins…can travel over 150 km per day in their natural habitat” (One Voice, 2011). These representations do not include the factors that may be causing a dolphin to travel ‘150 km per day’. No human knows whether it is seeking food, or avoiding dangers, or moving for reasons only dolphins understand. These descriptions do not discriminate between the two varieties of bottlenose dolphins, the inshore and offshore varieties. The inshore variety is the most commonly found one in dolphinariums (AAMPA, 2011), and

“[i]nshore bottlenose dolphins are typically seen in bays, tidal creeks, inlets, marshes, rivers and waters along the open ocean beach, often at depths of 3m (9.8ft) or less [and] show less extensive, localized seasonal movements and many have been observed staying within a limited, long-term home range” (AAMPA, 2011, np).
A common description of (supposed) human-induced negative effects on dolphin’s life experience (O’Barry and Coulbourn, 2000; Praded, 2002; Brakes and Williamson, 2007; Rose et al., 2009) is the idea that

“Using echolocation (sound waves) to determine where they are and to explore, this ability is useless when dolphins are enclosed in a smooth-sided, barren tank or netted off sea pen” (Marine Connection, 2011, np)

This is not supported by scientific research conducted in captive environments (Lilly and Miller, 1961; Au et al., 1988; Norris et al., 1992; Branstetter et al., 2012). Akiyama et al. (2005), for instance, found that dolphins in built environments increase their sonic output in the presence of humans and suggests that this may have positive emotional effects upon DAT patients, as described by Antonioli and Reveley (2005).

Spatially, the status of being enclosed, while seemingly an unethical displacement for a type of animal that typically lives in ‘the unbounded oceans’, does not categorically diminish life experience. When a dolphin no longer swims 150 km per day because it lives in a built environment, this is a different life experience. The example of dolphins who cannot live outside of human care exemplify this point: theirs is a different life from their free-ranging conspecifics, as is often the case for other animal species who become domesticated or semi-domesticated. By constructing the life of “a captive animal [as] any less for being captive is only to further objectify it” (Bear, 2011, pp. 300-301) and to deny it its own subjectivity, which is often the basis for protectionist constructions of animals and their rights. While it is incontrovertibly true that a dolphin living in a built environment has significantly different life experiences, it is problematic to claim that their lives are diminished, rather than different.

**Overwork**

Dolphins in constructed environments are often described by activists and scholars as having to ‘work hard’, ‘do silly tricks’, ‘do circus shows’ and ‘entertain people day after day’ (O’Barry and Coulbourn, 1989; Cartlidge, 1998; Lindley, 1998; Mark, 2010). They are also represented as ‘slaves’ by some activists and scholars (White, 2007; Marino et al., 2009). This latter depiction is consistent with the position of many animal liberationists (Dunayer, 2004; Gregory, 2009; Francione, 2010; Freeman, 2012) who insist upon this parallel construction. While some critics insist that trained behaviours are all ‘silly tricks’ and ‘un-natural’ (O’Barry and Coulbourn, 1989, 2000), research has shown that participation in training and working
relationships with humans can be understood as enrichment, stimulation, and fulfillment of ‘natural’ drives (Hearne, 1991, 1995; Laule and Desmond, 2001; Haraway, 2008; Claxton, 2011; Miller, 2011; Ninomiya, 2011; Sew and Todd, 2013).

Nathanson has pointed out that, in the Dolphin-Human Therapy program, “The total amount of time [a] dolphin participates with humans…averages 27 minutes per day” (Nathanson and de Faria, 1993, p. 27, emphasis original). At the CDTC, the author witnessed numerous sessions during which actual interaction between dolphins and humans in their two sessions per day totaled approximately 90 minutes. The remainder of the dolphins’ days were spent either in training and enrichment activities with professional trainers (up to an hour per day), or in social encounters with the other dolphins.

Quantification of what might constitute ‘overwork’ for humans is problematic. Referred to as “anxiety over time pressure” (Bittman and Rice, 2002, p. 21) or “extension…and intensification of work” (Skinner, 2002, p. 38), it is not uniformly understood. Skinner points out that ‘overwork’ does not result from coercion to work harder in most (human) cases, but is the result of choices based in subjective understandings. Bittman and Rice understand ‘overwork’ to be a way to describe the result of shifting balances in time allotment. How these understandings can be applied to understandings of non-humans is not clear, leaving the question of whether dolphins in human care are ‘overworked’ in therapy programs unanswered.

**Loss of Freedom**

The final concern, loss of freedom, is similar to, but not quite the same as that of captivity. It is a broad construction, one that implies regimes of domination and displacement, control over actions, and in the discourse of DAT, the notion that an essential quality of ‘dolphin-ness’ has been removed or overwritten by humans. Representative of this notion, from the animal-protectionist discourse focused on dolphin captivity, is the following lengthy description:

“Imagine you are a young dolphin. The ocean is your playground and you swim up to 40 miles a day, chasing fish and playing with your friends. Now imagine that you are ripped violently from your home and sold to a marine park where you have to jump through hoops and interact with paying
customers to get fed. Between shows you are forced to wait in a pool of water that’s barely big enough to contain you. Sadly, this is what life has to offer for the hundreds of dolphins kept in captivity throughout the world” (World Society for the Protection of Animals: Campaigns-Free the dolphins, in Ng, 2003, p. 12).

Freedom is difficult to define. While the ‘common sense’ idea of freedom, as expressed in the quote above may be simple-seeming, such that ‘restraint of a desired action, whether of movement or thought’ (New Oxford American Dictionary, 2005) would constitute loss of freedom, freedom resists easy definition. For instance, the statement that “Part of [a dolphin’s] freedom is freedom from captivity” (Hoyt, 1992, p. 161) highlights a portion of its complexity: freedom is a multi-dimensional, context-dependent concept.

A widely accepted set of standards for the welfare of animals, and standards that are often referred to in the context of Animal Welfare, are called “The Five Freedoms”. A British committee looking into animal husbandry systems, producing the ‘Brambell Report’, formulated these. The Five Freedoms are an evolving set of standards. At present (2013) they are:

1. Freedom from Hunger and Thirst – by ready access to fresh water and a diet to maintain full health and vigor.
2. Freedom from Discomfort – by providing an appropriate environment including shelter and a comfortable resting area.
3. Freedom from Pain, Injury or Disease – by prevention, that is, living in spaces free from danger, and rapid diagnosis and treatment.
4. Freedom to Express Normal Behaviour - by providing sufficient space, proper facilities and company of the animal’s own kind.
5. Freedom from Fear and Distress – by ensuring environments and treatment which avoid mental suffering (following FAWC, 2012).

These ‘freedoms’ presuppose humans maintaining spaces in which animals are controlled to some degree: livestock, pets, etc. Animal protectionists invoke each of these standards regarding dolphins participating in DAT programs, focusing especially on the issue of mental suffering as a result of enclosure (see White, 2007
for a lengthy review). These standards of freedom are partially measurable by biological assessment, and also require a psychological assessment of dolphin needs and the consequences of needs not being met. Each of them is linked to the spatial provisions afforded by humans. The protectionist community challenges the ethical standards by which enclosure itself is accepted by everyone in the community of DAT’s practice (Brakes and Williamson, 2007; Rossiter, 2007; Rose et al., 2009), invoking these ‘five freedoms’ as specific aspects of its unethical practices.

Applying a simple sense of the word, dolphins within enclosures do experience a loss of freedom. A strict parsing of the notion of these spaces by Jamieson makes this clear: “the very point of systems of confinement is to deprive them [all zoo animals] of their freedom” (2002c, p. 183). Problematising this construction, however, are those dolphins who are removed from beaches where they have stranded and are taken to enclosures and have been given care and extended lives. This is highlighted in the section heading in an online article reporting on dolphins stranded on a beach and taken into long-term care: “Rescued - and that's the end of freedom” (SMH, 2003, np). The lives of the dolphins referred to, at the Pet Porpoise Pool in Coffs Harbour, Australia, have been ‘freed’ from impending death and from suffering, but are described as being now at ‘the end of freedom’. The removal of dolphins from a beach is a radical displacement from their lives in the ocean but does not constitute an end to the freedom that being alive affords. This situation is not atypical for some dolphins who become part of DAT programs.

The notion of freedom is also problematic for those born inside a facility who likewise could not survive ‘release’. These categories of dolphins have been afforded the ‘freedom’ of having lives, albeit different lives. The lives of dolphins living in built environments are, therefore, not necessarily accurately described as being restrained, or coerced, or deprived. This includes most, if not all, dolphins working alongside humans in DAT.
Displacement or Liberty?

Animal protectionists suggest that therapy programs (among other kinds of dolphin enclosure) are sustained by unethical attitudes of dominance that begins with displacement:

“DAT survives because of people’s beliefs...they must believe that a dolphin ripped away from its family and carried away to live in a water-filled closet is there because it wants to help humans” (Rossiter, 2007, p. 3).

For some scholars and activists who oppose DAT, all animals kept in built environments are displaced and should be released (Regan, 2004; White, 2007) and should be prevented from reproducing. The liberationist agenda to afford dolphins ‘freedom’ and ‘empty cages’ seeks to end, by contraception and separation, the freedom for dolphins to have sexual and parental experience so that they will “die out in the next 40-50 years” (White, 2007, p. 218). This is despite the assertion that “[o]ur responsibility is to make sure their lives are as satisfying as possible” (2007, p. 218). The contradictions in this agenda, constructed under a regime of ‘liberation’, are not acknowledged in the oppositional part of the captive dolphin discourse.

For Taylor (2013), there is a general presupposition about all Animal Assisted Therapy as reflected in ethical questions about displacement and DAT:

“While dolphins as therapists are particularly contentious and the ethical issues are compounded by the fact that they are wild animals often caught or bred in captivity specifically for their use in DATs, there are broader ethical considerations regarding using any animals for human benefit in this way. In essence, AAT is predicated on a belief in human superiority – that we, as humans, matter more than animals and that it is our right to use animals as tools to help us get better” (2013, p. 32).

No references are provided by Taylor to substantiate her claims that dolphins are ‘often caught or bred in captivity specifically for DATs’, and the essentialist generalization made by Taylor does not represent all beliefs within DAT’s community of practice (see chapter 7).
Some scholars make no distinction between freedom and liberty (Jamieson, 2002c) and argue that this is a single paramount ideal to be upheld in all cases. However, other ways of thinking about freedom and liberty (Hearne, 1995; Haraway, 2008) can be invoked to help overcome the transgressions inscribed in the ethical challenges presented by displacement and enclosure. Liberty has been described, in regard to animals, as the “condition [that] frees the animal to make the fullest use of some or all of its powers” (Hearne, 1995, p. 441). Just as a disciplined reduction of liberties applied by a researcher to his lifestyle enables the construction of a doctoral thesis, the constraint of some dolphin behaviors can liberate other capacities. The enclosure of a dolphin within a pool, where its sustenance and safety needs are met and it does not have to contend with “the two biggest problems of life in the wild, going hungry and getting eaten” (Pryor, 1991, p. 345), can be liberating of its capacity for ‘allomaternal care’, for instance. This is care for others not ones offspring, a common behavior among cetaceans (Karczmarski et al., 1997; Mann and Smuts, 1998; Gero et al., 2009). This may go some way toward understanding the attentions given, and effort expended, by dolphins in therapy programs. Mutual benefit is the outcome, a geo-ethically defensible outcome cited in DAT’s supportive discourse (Hindley, 1983) and, in one instance, is implied in the oppositional discourse (Zamir, 2006, p. 198, endnote 17).

Some scientists describe the lives of some dolphins living in ‘captive’ situations as ones of willingness, creativity, and even enjoyment (Lilly, 1961, 1967; Pryor, 1975, pp. 234-253; Pryor, 1991, pp. 345-346; Taylor, 2003, pp. 213-223; Wood, in Mordaunt, 2010-2013). In writing about her tenure as Head Trainer at a facility in Hawaii, Pryor describes several dolphins as “domestic dolphins [who] deliberately chose to join the family of man [sic]” (Pryor, 1975, p. 269). These were dolphins who worked side by side with human divers and lived in a floating sea pen, jumping out to wander freely and to feed, and returning for safety. Others identify the possibility of lives of ‘dignity’ for dolphins, with respect from humans (Howard, 1996, pp. 285-287; Greenough, 2009, pp. 282-283).

The supportive discourse embraces dolphins ‘with nowhere else to go’ as animals with talents that can be developed into mutually enriching skills for use in therapies, understanding these dolphins not as having been displaced or as transgressors, but as
agents of change: change for themselves and for humans. As part of the supportive discourse, on websites and in brochures, the dolphins in DAT programs are often represented by portraits and brief ‘biographies’ (e.g., CDTC, 2013c; DolphinReef, 2013; DolphinTherapyBali, 2013; Hoagland and Hoagland, 2013b) or are represented in photographs from DAT sessions (Sandelin, 2013; TherapyNemo, 2013). These photographs and biographies (as well as scientific studies) represent dolphins as individuals with distinct personalities (Highfill and Kuczaj, 2007) in apparent good health (see Image 6.1).

Image 6.1 A biographical image of a therapy dolphin. Image from http://www.curacaodolphintherapy.com/en/the-team/the-dolphins, permission to reproduce in Appendix B.

The beneficial effect upon animals of interaction and contact with humans has been shown to be, in some cases, observable (Hindley, 1983; Claxton, 2011; Miller et al., 2011; Ninomiya, 2011). The comment that “cetacean/human bonding seems to involve a mutual need for touching and stroking, and also seems to involve (at least, as observed in captivity) mutually strong emotional ties” (Hindley, 1983, p. 80) is a key to understanding the supportive discourse of DAT. As Hindley also pointed out “These social animals whose need for love and affection, social interaction and tactile contact may be no less than ours, and who have demonstrated over the centuries a desire to interact with humans, may benefit equally from therapeutic interactions…mutual benefit from interaction is hardly surprising if we pause to think about our biological and evolutionary heritage, of the intricate interdependency between human and animal down the ages…[i]nvolve cetaceans in therapeutic situations may usefully extend the range of human/animal bond research in ways which could be important to the mental and physical wellbeing of many species, including humans” (Hindley, 1983, pp. 83-84).
In Hindley, the benefit gained by DAT dolphins, by touch and interaction with humans, is part of the liberty to pursue emotional, mental, and physical wellbeing, a biological heritage. In the geo-ethical context, this description of ethically unambiguous mutual benefit is consequent upon sharing space, the intricate interdependency afforded by close physical proximity.

Challenging the normalized notion of displacement – ‘dolphins out of place’ – DAT’s dolphins have lives unlike those in the oceans but not without significant experiences. Dolphin captivity does not always have negative consequences for the dolphin. Dolphin lives are heterogeneous, unique and individual.

Chapter Summary

The discourse of DAT consists largely of representations produced by varied geo-ethical understandings related to captivity and its five spatial sub-themes. The supportive part of the discourse attributes importance to the presence of dolphins and constructs justifications for captivity in various ways. The oppositional part of the discourse challenges captivity as a core issue, addressable on various grounds, most importantly those of ethics. Freedom’s varied conceptions, applied to the socio-spatial constructions of DAT, do not provide an unambiguous understanding of the ethics of ‘captivity’. Displacement of dolphins from their natural habitat, viewed from the animal protectionist ideologies, is the product of a prevalent attitude of dominance by humans over other animals. In contrast, in the supportive arguments the same displaced dolphins are understood as newly constituted, as liminal animals in transition who now live among humans and whose wellbeing is dependent upon frequent and stimulating interaction with humans. These two opposing views inform the central contestations of DAT.
Chapter Seven: Case Study
Dolphin-Assisted Therapy at the Curacao Dolphin Therapy Center

This chapter presents a case study of DAT at the Curacao Dolphin Therapy Center (CDTC), on the island of Curacao. It draws upon various sources and categorises data into several themes. It begins with a description of the geographies of Curacao, then develops a description of the centre’s cultural and physical environment. The role of Dolphin Aid at the CDTC and its efforts to further the development of DAT globally is described. A section is included that describes the individual dolphins and an experience the researcher had with two of them that highlights the role of dolphins as participants in the research. The socio-spatial environments of the CDTC are described next. This is followed by a description of the various effects of DAT across different populations.

Place: Curacao

Image 7.1 Regional map of Caribbean, with Curacao highlighted by arrow. After clipart provided by: www.worldatlas.com, 2013.
Curacao has an arid, desert ecology, with harsh landscapes of lava and sharp-edged coral stone underfoot, prickly cactus, thorn-covered trees, no flowing fresh water, and little farmable land. Its northeast-facing coast is exposed to strong winds, with little shore access, while its southwest-facing coast is sheltered from prevailing winds, with crushed coral beaches, clear, turquoise waters and several large bays. Remote from many places, it is a small island 55km off the north coast of Venezuela (Image 7.1, above), approximately 444 sq. kilometres in area. It has a permanent population of approximately 142,000 people (statistics from CIA, 2012). Favoured with a large deep-water port on the southwest coast, from its discovery by Europeans in 1499 it was variously claimed by Spain, Holland, England, and unsuccessfully, France. Following its early history as a major transit port in the African slave trade under the control of the Dutch, it, and its Netherlands Antilles neighbours (Aruba and Bonaire), served as a base for Dutch interests in South and Central America, eventually becoming a site for the refining of oil found in Venezuela, and as an international financial services centre (Anderson and Dynes, 1975; Curacao Tourist Board, 2012). In recent decades it has undergone a transformation by adding infrastructure to become an international tourist destination. By constructing one of the largest desalination plants in the Caribbean region to supply safe, high quality drinking water, and through intensive investment from Europeans, Curacao has become a favourite destination for Dutch, American, Belgian, and German tourists (Geode, 2008). Dutch, Spanish, and English languages are widely spoken by local people, along with their native Papiamentu language (CIA, 2012; CTB, 2012b). Over 500,000 tourists per year visit, arriving by airplane and cruise ship (CTB, 2012b). A former constituent country of the Kingdom of Holland along with Aruba and Bonaire under the name Netherlands Antilles, Curacao was granted autonomous control of its internal affairs in October of 2010 (CIA, 2012).

Weather conditions on Curacao are generally mild and predictable. Lying south of the ‘hurricane belt’ in the Caribbean Sea, it receives an average of only 50cm (20 inches) of rain per year, with ocean temperatures from mid-20’s C (75° F) to high-20’s (85° F). The air temperatures vary little over the year, with an average of 28° C (86° F). The climate in Curacao is ideal for tourists, and lends itself to in-water encounters with dolphins on a year-round basis (CIA, 2012; Lonely Planet, 2012).
Curacao is located a long distance from Europe, where most of its DAT participants reside. It is, for instance, a 10-hour (non-stop) flight from Amsterdam to Curacao. Several families interviewed for this study referred to having visited the Netherlands Antilles as tourists before coming for DAT. For instance, the Vanderburg family said, "Almost every year we’d fly out here to Bonaire. We bring our children with us every time so they’re quite used to traveling…we do this every year, so [for the therapy] we just come to a different island" (interview, 2011).

Familiarity with its history and language, and its long connection to Northern European culture have facilitated acceptance of the Curacao facility as a reasonable choice for DAT for some families, despite the long distance travel required. The bridging of distance by cultural similarities serves to decrease the problems of physical proximity that the global network of DAT facilities produces. Nevertheless, such distancing of the facility from other DAT facilities also decreases the possibility of DAT organizing itself professionally across such a globally distributed network.

**Origins of the Curacao Dolphin Therapy Center**

Adriaan ‘Dutch’ Schrier, an expatriate Canadian, funded by a local resort owner, designed and built a pair of small islands on the southwest-facing coast of Curacao, about 15 minutes from the capital city of Willemstad, beginning in the early 1980s (Abraham, 2001; CTB, 2012a). Taking advantage of an extensive sandbank just offshore, quarried boulders were dumped on the sandbank to construct the islands, one of which was bordered by artificial lagoons. Careful design allowed ocean currents to continuously move through the lagoons, while eliminating large wave action (Images 7.2, 7.3, below).

Infrastructure was put in place for dolphins, five of whom were leased from another facility in the Caribbean and brought to the Sea Aquarium in 2002 to be part of an education and experiential tourism facility (Dolphin Academy, 2012). In 2001, negotiations had been entered into with the Upledger Foundation in the United States of America and the SAM Foundation in Holland to establish a DAT program in partnership with Grupo Dolphin Discovery from Mexico (Abraham, 2001) at the Curacao Sea Aquarium. Later, new negotiations were begun with Dr. Nathanson and his program manager to bring their Dolphin-Human Therapy program to the Curacao
Sea Aquarium from Florida. After some months of discussions negotiations broke down\(^a\) and the contract was not finalised (Nathanson interview, 2011). Soon afterward Kirsten Kuhnert, the President and Founder of Dolphin Aid, signed a contract to oversee a dolphin therapy program (Dolphin Aid) at the Sea Aquarium, serving as a paid consultant (Kuhnert interview, 2011). Her expertise was based on her eight years of close work with Nathanson’s Human-Dolphin Therapy program, beginning as a parent of a child with disabilities living in Germany. She became an advocate and activist forDAT and moved to Florida. Dolphin Aid began its operations at the CDTC in 2004 (CDTC, 2013b).

The CDTC has been produced by a global network of actants, an unstable network of interacting sites of financial, therapeutic, and bodily agencies, gradually settling toward stability. It has drawn on global movement as well as local movement in its construction of a physical environment and has been produced by humans from many global sites in response to the peculiar agency of dolphins, whose charismatic presence served to both inspire and define its constructions.

**Place: The Curacao Sea Aquarium, the Dolphin Academy, and the Curacao Dolphin Therapy Center**

The Curacao Sea Aquarium is situated outside Curacao’s capital city of Willemstad, on the southwest-facing coast (Curacao Sea Aquarium, 2012). The Curacao Dolphin Therapy Center (CDTC) has been operating since 2004 as a distinct and separate business entity (CDTC, 2012), side-by-side with the Curacao Dolphin Academy, which opened in 2002. Both are housed at the Curacao Sea Aquarium.

The Dolphin Academy, adjacent to the CDTC, is an experiential tourism, education, and research facility that has seaside enclosures for sea lions and dolphins partially surrounded by quarried boulder walls, a museum, classrooms, a theatre, and several research laboratories. Research on reef ecosystems at the Academy is ongoing (Baldwin and Robertson, 2013) in cooperation with the Smithsonian Institution from the United States of America. The Sea Aquarium, adjoining the Academy and CDTC facilities, displays various species of local sea fauna and flora and a selection of
indigenous birds. The physical relationship between the Sea Aquarium, the Dolphin Academy, and the Therapy Center is shown in Images 7.2 and 7.3.

Image 7.2. On the right is the Curacao Sea Aquarium, with its buildings, walkways and lagoons, with Curacao Dolphin Academy below and Curacao Dolphin Therapy Center in the upper right. Image provided by CDTC, permission to reproduce in Appendix B.

Image 7.3 Curacao Dolphin Therapy Center shown by red outline, adjacent to the Curacao Sea Aquarium. Image provided by CDTC, modified by the author, permission to reproduce in Appendix B.

CDTC is situated across a short bridge from a large parking lot, on a constructed coral island covered by ‘man-made’ constructions. Approaching it on foot, to the right is a hotel, with swimming pool and restaurants. Straight ahead is a former minesweeper boat, one hundred fifty feet long, embedded in concrete, which serves as an office and as a hostel for employees of the Curacao Sea Aquarium and for interns at the therapy
centre (See Image 7.4). This adjacent accommodation for interns and arriving therapists and trainers is intended to foster collegiality and bonding among the team at the adjoining facilities, and serves as a place for relationships to begin and to strengthen. The majority of the trainers, from both the CDTC and the Dolphin Academy, live at other sites around the island, but many transition by first staying in the converted minesweeper, as do many of the therapists from the CDTC. Its close proximity to the facilities and the animals under their care support the multi-species environment in a style of interaction that both facilities depend upon. Seals and dolphins are in constant close proximity to the human team members, just below the cabins of the minesweeper, on the opposite side seen in the image, and the soundscape produced by them helps human timetables to become adjusted to non-human rhythms as new team members begin their time at the Academy and the CDTC (Kuerschner, Head Therapist, interview, 2011).

Image 7.4 Ex-minesweeper converted to serve as a hostel for Curacao Sea Aquarium and Curacao Dolphin Therapy Center employees. Image by the author.

To the left is a gate, the entrance to the Curacao Sea Aquarium, the Dolphin Academy, and the Dolphin Therapy Center. Through the gate, past the entrance kiosk, a wide smooth walkway leads between a lagoon on the left, with seating facing it, and a row of connected small buildings on the right. The first entrance on the right is to the Curacao Sea Aquarium and the Dolphin Academy. Farther along, toward the sea,
on the right is the entrance door to the CDTC (see Image 7.8). The island environment, constructed as a socio-spatial zone to foster multi-species contact situates visitors in a liminal space, a transition zone between land and ocean, built and natural. The physical constructions are designed to support the affective intent of both safety and exposure, for tourists, scientists, and DAT patients and their families.

Entering the CDTC indoor clinic space, there is a sunlit, clean area with comfortable seating, a table and chairs, a box full of toys, a water-cooler, with a reception office facing onto the room. On one of the walls is displayed a large collection of photographs of children with disabilities in water, often with a dolphin and a therapist accompanying them (see image 7.5). There are many hundreds of these photographs pinned to this wall and on adjoining walls in a hallway around a corner to the right. This visual display of therapeutic moments creates a link to the thousands of other patients who have been to the CDTC, adding to the sense of place as one of safety, familiarity, and therapy.

![Image 7.5 Interior ‘photo wall’ of reception area, CDTC, Curacao. Many hundreds of photos of patients with dolphins and therapists cover the upper half of the wall and the display extends around a corner, continuing down a hallway to the right (not visible). Image by the author.](image)

To the right extends a hallway, with the Head Therapist’s office on the left, and at the end a conference room surrounded by offices for therapists and trainers. Each office has several desks, computers and bookcases. To the left, from the entrance room, is
another hallway, with four small clinic rooms along it. These spaces are function-oriented, specifically designed as an environment of business-like efficiencies, where the entire team of management, trainers and therapists work in close proximity to each other in a space intended to foster a sense of team-work and collaboration between DAT practitioners to produce results for clients.

Outside, across from the entrance to the CDTC offices, is a low wall with a gated entrance to a wide smooth ramp leading down to a small island with buildings on it, surrounded by lagoons. The buildings house a photo lab, an IT office, and equipment storage. Past the buildings is a fork in the pathway, leading, on the left, past an open-air storage building where wetsuits, flippers, and other equipment are stored and/or hung to dry. Past this storage hut is a walkway leading to the far side of the therapy lagoon, where there are entrances to six therapy stations. One of the stations has a large wheelchair lift to afford patients confined to wheelchairs access to the water. One of the stations, at the time of the author’s visit, was being renovated, a new floating platform being installed on the final day of the visit. The fork to the right leads to several shower-and-changing rooms with toilet facilities, and past those, a walkway leads to an entrance to another lagoon with a single floating therapy platform, and to a long pier that extends across the main therapy lagoon. The pier has benches spaced along it for families to sit on, to observe the therapy sessions (see Images 7.6 and 7.7).

This smaller island, surrounded by sheltering breakwater walls and by the slightly higher island where the offices are, and facing toward the shore of greater Curacao, can be understood as a staging area in the progressive displacements designed for the DAT patient. It is a specialized environment where technologies are in place to enable controlled access to the ‘wild ocean’, where a ‘wild animal’ lives whose agency has contributed, in large part, to the constructions of this environment. The displacement of persons with disabilities, in a series of relatively brief sessions, from a formerly land-based environment controlled by humans to a watery environment where a non-human lives and exercises its agency, presents various challenges. This smaller island is designed as an environment where these persons change their clothes, don swimming gear, and relinquish their hold on family, and families are required to
relinquish their hold on those they care for, and following the DAT sessions, it is where they reunite.

Image 7.6 The viewing pier, along the right side of this image, overlooks the therapy lagoons. Parents and carers can witness and photograph sessions their children are experiencing in the lagoons to the left and right of the picture. Image by the author.

Image 7.7 Assembled panorama of main therapy pool, from the viewing pier. Note four floating therapy platforms, one wheelchair-lift station, and one position where no floating platform has been installed. Four dolphins are in this lagoon. Image by the author.

Back on the island, where the clinic offices are, is a food-storage and preparation room, and a veterinarian’s office. The Sea Aquarium, the Dolphin Academy, and the CDTC share these facilities. All of the pathways throughout the adjoining facilities
are smooth and level, designed for easy access by wheelchair. Low stone walls on the lagoon side prevent accidents and provide places to sit to observe activities in the lagoons below. The paths are shaded in places by overhanging trees. Picnic tables are placed along the wall outside the clinic offices, under the trees, where families and therapists meet to discuss upcoming or just-completed therapy sessions (see Image 7.8). These are zones of affective contact between the professional DAT practitioners and families, where knowledge from within the water zone, from which families are excluded, is shared, emotions are shared, and plans are laid for further therapeutic practices.

**Image 7.8** Walkway into CDTC. On the right are shade trees with picnic tables underneath, where therapists meet with parents or carers. Ahead, on the left, is the gated entrance to the therapy area. Changing rooms are in the small building to the far left, just above a portion of the therapy lagoons. Image by the author.

The ambience of the place is clean, fresh, open, with the smells of the ocean breezes, the hot sun, and the calm blue water all contributing to a sense of safety and ‘controlled nature’. It serves as a ‘civilized’ entrance to an intermediary zone of relative safety, adjoining the un-controlled world of the ocean. This liminal intermediary zone has been constructed so that wheelchairs can be brought to the ocean with ease, where physically limited humans can make contact with the natural world in relative safety. There is no prominent evidence of the place as a medical
clinic with a typical ‘hospital-clinical-utilitarian’ feeling. It is an entirely constructed environment designed to facilitate an experience unlike others, yet having many familiar elements. It is a place for relational experience, where liminal dolphins are in transition from lives in the ocean. It is a place where dolphins become active participants in human lives while living in a natureculture environment, and where humans with disabilities enter a liminal zone, crossing over from limitations and disempowerment into new experiential realities mediated by sun, water, supportive humans, and engaging dolphins.

DAT depends upon, and produces, many environments. Analysing the social and physical environments at the CDTC helps this research to go beyond the representations of DAT found in both supportive and oppositional texts and opens DAT to better understandings of its relational qualities.

Geo-history of Dolphin Aid
Dolphin Aid is a non-profit organization whose mission is to provide financial and logistical support for families seeking dolphin-assisted therapies; to raise awareness of DAT; to seek recognition of DAT by the necessary governmental and insurance industry bodies to enable families to have DAT be part of health schemes; and to develop standards and certification for therapists, therapy facilities and programs (Kuhnert, 2013). Dolphin Aid was founded by Kuhnert in 1995, following her experience with her son, who was almost drowned in an accident at the age of two, the previous year (this and the following details are from Kuhnert, 2002). Her son responded well to Nathanson’s Human Dolphin Therapy program, and Kuhnert decided to start a foundation (Dolphin Aid) to help make access to this kind of therapy possible for other families.

Realising that the high cost of the therapy and associated costs of travel and accommodations was out of the reach of many families in Europe (and elsewhere), Kuhnert determined to support them by raising funds by means of donations and seeking donated air fares and other support (Kuhnert, 2002). Dolphin Aid was incorporated as a tax-deductible-donation-supported entity in Germany in 1995, then incorporated as a non-profit in the United States in 1999, and has provided support for
thousands of families since 1995. For instance, the Dolphin Aid newsletter reports that there were 348 patients helped in 2004 (Siebert, 2004, p. 24). This included support for families to experience DAT in Israel, Spain, USA, and Curacao. In 2011, Dolphin Aid assisted 53 families to go to the Curacao Dolphin Therapy Center, between April and July (Evers et al., 2011a, p. 9), and 56 families between July and September (Evers et al., 2011b, p. 10)39.

The socio-spatial effects of Dolphin Aid and its program at the CDTC extends into a global network of programs and facilities that offer DAT. Details of the construction of definitions, supportive and oppositional arguments, the role of dolphins, and the socio-spatial effects upon both recipients and providers of the Dolphin Aid kind of DAT, as practiced at the CDTC, are described in the sections to follow.

The CDTC and Dolphin Aid
Dolphin Aid has changed its policies in response to various criticisms about the environments and program details of some of its recommended sites, choosing to only recommend patients to, and to promote, dolphin facilities with certain carefully defined qualities. Drawing on the experiences Dolphin Aid has gained in the development of the CDTC and its program, it has changed the Nathanson model (under whose care Kuhnert’s son had shown such marked improvement), and put in place its own version of “Dolphin Aid Therapy” (Dolphin Aid, 2011, p. 2). This led to Dolphin Aid publishing its “Articles of Certification for Dolphin-Assisted Therapy Institutions” (Dolphin Aid, 2011). These articles define the standards that must be met for a facility to be part of Dolphin Aid’s network of sites providing the Dolphin Aid type of DAT.

Dolphin Aid is endeavouring to establish what it deems to be appropriate standards, and intends to have these standards accepted by, adhered to, and promoted by other facilities (Kuhnert interview, 2011). This is, in part “to avoid malpractice and underline the importance of [a] conceptual and scientific foundation” for DAT (Dolphin Aid, 2011, p. 1). To accomplish this,
“…[the] offered forms of therapy as well as the entire infrastructural background of the institution must be in accordance with these guidelines in order to treat safely, meaningfully and successfully” (2011, p.1).

Among the criteria are:

1. “immediate contact between dolphin and patient” (2011, p. 3)
2. “…the availability of medical care [in case of need] according to American or European standards is mandatory” (2011, p. 8)
3. “…[the facility is] to have a great portfolio of contacts in the land of origin of the individual patient in order to give advice.” (2011, p. 7)
4. “In the course of a therapy period the entire team [family and carers] around a patient is [to be] taken care of.” (2011, p. 7)
5. “A cycle of therapy should consist of 10 days with a 2 day break” (2011, p. 8)
6. “…daily sessions of therapy should not exceed 4 units per dolphin”, with “units of 60 minutes total” (2011, p. 12)
7. “Dolphins used in certified therapy facilities must be born in captivity [and] “Grandfathered in” dolphins must be in the possession of the owner for more than 10 years” (2011, p. 12)
8. “Dolphin Aid does not support nor sees the need to capture wild dolphins for the purpose of dolphin-assisted therapy” (2011, p. 12)
9. “…Dolphin Aid bases its rules of certification not only on the needs of the patients, but also on the prevention of the neglect of animal rights” (2011, p. 12).
10. “…the dolphin home [must be] in a natural environment [as a] requirement for certification” (2011, p. 12)

These prescriptive criteria reflect, and seek to respond to, some of the arguments that oppose the practices and existence of DAT and are indicative of the various constructions of DAT and importantly for this research, the socio-spatial arguments within its discourse.

For instance: item 1 requires that intimate proximity between patients and dolphins is a necessary part of DAT, including ‘immediate contact’. This is predicated on Dolphin Aid’s understanding of the role of dolphins in DAT:
“The closeness to the dolphin, the signals of his approach and communication sent by him in combination with the contact with the patient lead to impressive experiences for the patient, which may be the reason for a possible healing process and may also trigger a series of supporting psychological processes” (Dolphin Aid, 2011, p. 3).

Items 2 and 3 (above) specify the quality of available medical care nearby, so that families can rely on care if an emergency should arise while away from their primary care location, and that follow-up care can be supported by the DAT program. This indicates the effort by the CDTC and its Dolphin Aid-style program to be situated in the global networks of ‘best practice’ medical care.

The CDTC’s program extends its care beyond the patient as suggested in items 4 and 5. The care team is clearly identified as part of the DAT process and the schedule of sessions is arranged so as to include time for a family to consolidate gains from the therapy and recover, together, from the rigors of the work required by DAT. In socio-spatial terms, these are aspects of the CDTC’s version of DAT’s inclusivity, and the creation of social spaces for maintaining family unity and wellbeing.

Dolphin Aid has tried to establish specific therapeutic practices regarding time and proximity by using its own representation of dolphins and their role in therapy, based on its practices at the CDTC. Not all of these details about DAT delivery are, in other programs, accepted as being universally correct. For instance, in item 6 (above), it is specified that the in-water portion of the daily therapy will be 60 minutes per patient. This duration of in-water interaction time is based on experience and a view of the dolphin’s capabilities:

“…we are the only facility in the world that has an hour time on the dock and in the water. It gives a lot of room to see whether the dolphin thinks that the extension of the right arm is more important than the foot push on the left foot. We need to have that freedom, otherwise we do not have the full capacity of the beauty of the dolphin assisted therapy” (Kuhnert, Program Director interview, 2011).

Most other programs limit the in-water time to 20-40 minutes per patient (e.g., Hoagland and Hoagland, 2009, as indicated on FAQ page; Kemaloglu, 2012; Linke,
2012; Lukina, 2012; Nathanson, 2012; Weitzmann, 2012). Viewed in socio-spatial terms, the positive values potentially found by extending the duration of proximity at the CDTC are predicated on perceived agency, the notion that a dolphin’s intentional actions are more likely to be available for therapeutic goals if longer durations of time in interactive proximity are provided.

Another socio-spatial position taken by Dolphin Aid is found in items 7, 8, and 9 (above) in relation to captivity and the welfare of dolphins. It acknowledges the capture of dolphins for DAT and specifically excludes any program that does this or utilises dolphins who have been captured, with the exception of dolphins who have lived in a built environment for at least ten years. Ten years in captivity has been determined by Dolphin Aid to be the maximum period of ‘releasability’. To date no research on bottlenose dolphin populations has shown them to be negatively affected by captures for display or DAT, although there are strong ethical arguments opposing their capture. Despite the open question as to the negative effect of captures on dolphin populations, persons from both sides of the DAT discourse advocate elimination of captures and, at least some recognition of the ‘rights’ of dolphins as individuals, an under-acknowledged point of agreement across the discourse of DAT:

“People couldn't understand that the founder of the support foundation for special needs people was also the founder of an animal rights activist foundation [Dolphin Aid]… only a healthy dolphin can be a good partner in therapy” (Kuhnert, interview, 2011).

Finally, in item 10 (above) the physical environment in which the dolphins are located and DAT is performed is shown to be of critical importance to Dolphin Aid, and is part of the central concept by which the CDTC identifies itself. Its socio-spatial identity as “tailor-made treatment provided by a professional and multidisciplinary team of therapists and specially selected dolphins in a natural environment” (CDTC, 2012, np) sums up its published self-description on its website.

By using Dolphin Aid’s Articles of Certification as a textual representation of the socio-spatial context of the CDTC’s DAT program, this case study gains insight into some of the various theories and practices to be found across the complex field of DAT.
Environments of the Curacao Dolphin Therapy Center

The policies followed at the CDTC (see above) call for the dolphin enclosure to be ‘a natural environment’. When the researcher questioned the Program Director about this detail, I was told

“…we want them to be in a natural environment. We want them to have the currents, we want them to really catch fish if they please and we want them to have hideaway spots if they don't want to work with us. Because the accusation that dolphin assisted therapy is only a feeding [unknown word: response?] is diminished right there. And I have observed sessions where there was no fish involved because the dolphin was too busy with the patient” (Kuhnert interview, 2011).

Part of the comment (above, by Kuhnert) refers to the question, raised by many opponents of DAT, of the dolphin’s participation and whether they are made to ‘work for food’, that is, whether their role is merely a manipulated response to hunger, i.e., “…doing tricks for food” (O'Barry and Coulbourn, 2000, p. 149) or “… captive dolphins perform[ing] their antics (including therapy) in return for fish – i.e., to survive” (Ellison, 2010). One oppositional text states unequivocally: “The dolphin must have an empty stomach to be obedient” (One Voice, 2011), another stating “…the use of food as a reinforcer reduces some animals to little more than beggars. Their lives obsessively revolve around the food presented during … sessions” (Rose et al., 2009, p. 31).

Dolphin Aid’s Program Director cites her own observation that this is not necessarily the case, at least in their credentialed programs, due in part to their policy regarding natural environments. Because natural environments (as opposed to fully enclosed concrete pools), although constructed, do afford the dolphins opportunities to chase and consume some species of fish amid a myriad of living organisms growing and changing on the bottom of the enclosures, and to experience waves and variations in water temperature, Dolphin Aid (and other programs using built ‘sea-pen’ environments) understands this as being less ‘un-natural’. Here the notions of the ‘production of space’ (Lefebvre, 1974) and the ‘production of nature’ (Smith, 2005) reveal their blurred meanings and consequences.
The agency of dolphins plays a significant role in the relationships that produce the spaces of DAT. Practitioners at the CDTC describe dolphins as having some traits similar to those of humans, using an affective anthropomorphism to represent this view of their agency. Some CDTC trainers and therapists describe the dolphins they work alongside as ‘colleagues’:

“…they are like a colleague, like a buddy in the water, and you work together… It's completely different from being with a dog or being with a horse because you can feel their intelligence [they are] capable of making their own choices…they like to think about things and they like to interact” (Asa, therapist, 2011).

While somewhat similar descriptions of interactions with other animals can be found, there is evidence that dolphins do possess unique cognitive states, such that they are self-aware and more deeply reflective and intentional than most other animals, and that theirs compares favorably with human self-awareness (Marten and Psarakos, 1995; Reiss and Marino, 2001; Bearzi and Stanford, 2008; Reiss, 2011).

The collegial environment for therapy at the CDTC follows a view of dolphin agency that produces a space of dynamic, changing relationship:

“Our way of working, our philosophy for therapists needs to be that you work with them as a colleague. You may assist him and he may assist you. A clearly defined hierarchy is not needed, you don’t have to be the alpha there. You have to establish good relationship and sometimes it is shifting” (Kuerschner, Head Therapist interview, 2011).

At the CDTC, this responsive relationship accounts for the needs of single actors:

“If we see that the dolphin is grumpy or not feeling like he wants to do something, which rarely happens, that's okay because these are our colleagues. We can just say 'Okay, we will do something else to give you a day off or whatever you need" (Mathew, therapist interview, 2011).

The socio-spatial construction of an interspecies collaboration dependent upon attention to mutual agencies in close proximity to each other, not as species-types, but as singular identities, is a key to understanding what differentiates DAT from other animal-assisted therapies, as shown in Figure 7.1.
One distinguishing feature of the CDTC dolphin training and therapy system is a quieter environment than entertainment programs, or dolphin-swim programs, purposely kept quiet out of consideration for the sensibilities of patients with disabilities, and to help maintain a more embodied and interactive communication environment for the dolphins. Trainers at the CDTC use very few whistle-based signals. Instead, hand signals, some voice signals, and body-language signals are used to communicate between trainers, therapists, and dolphins. This concern for a quieter environment has not been observed by the author in other programs. This illustrates how a sonic environment can have effects across species borders, with benefits for both the dolphins and the human patients. It also illustrates how a representation of dolphins as sensitive individuals with species-specific needs, paralleling the special needs of the human patients with whom they interact, is embodied in the practices of DAT at the CDTC. One family made a revealing comparison between the dolphin’s lives at the CDTC and the lives of human patients:

“…here we see that the dolphins live in a confined area but they are taken care of, and there are good people around and also good circumstances. We compare it with our daughter that she lives in her own world but she is used to the situation. We could think that she is not happy because it is limited, but she isn’t, she is used to it just like the dolphins. They are born that way and they are used
to it. The responsibility is to look after them and take care of them in this situation they are in” (Denke family interview, 2011).

This describes a liminal zone, an environment that affects both humans and dolphins, not as limited and enclosed space, but as a site of relative liberties, and where dolphins and humans share in some relatively equal needs. The spaces are understood as affordances of liberties where boundaries are overcome.

The physical and social environment of the CDTC has been carefully designed and represented to avoid an appearance of being for touristic entertainment, helping to place it in a different social ordering, as a medical/therapeutic facility within the global context of ‘best-practice’:

“That’s something we always try to focus on. Whatever we say, whatever we write, we make sure that people understand this is a rehabilitation facility in a very special place. It is a medical facility, and we have standards and we have certification, and we have really a lot of things that are the same in Europe or in America or wherever. It is a message we have to bring out over and over and over again, until somebody says, “What is it? It's a rehabilitation clinic?” And you say "Yes, it is!”” (Mary, therapist interview, 2011)

The Dolphins of the CDTC

When the field research at the CDTC was done for this project (June-July 2011), there were six bottlenose dolphins (*Tursiops aduncus*). All of the dolphins had been born under human care, either at another facility or at the adjacent Curacao Sea Aquarium. Their apparent health was reflected in their liveliness and the ways they actively focused their attentions on the DAT sessions, and played with various objects and live fish at other times.

The dolphins at the CDTC resist representation as ‘a dolphin’. In academic and activist texts, as well as in most supportive texts in its discourse, a generalised ‘dolphin’ is described and its characteristics are enumerated. In doing so the life narrative of each dolphin, who is an individual actor with a situated and unique reality is made invisible.
Despite the normalised understanding of the individuality of non-human animals in popular discourse, often given names and recognised to have personalities in homes, books, films, and live entertainment programs, most animals are referenced as species representatives. Yet, as Bowker points out “‘Species’ and ‘kinds’ are generally really just specimens” (2000, p. 249). Going further, by “engaging the individual” (Bear, 2011, p. 303), identifying the ‘specimens’ who live at the CDTC by their names, their histories, their personalities, proclivities, capacities and relationships resists allowing them to be subsumed under the over-simplified name of ‘dolphin’.

While at the CDTC conducting the field study for this research, I was afforded opportunities to observe the dolphins, the facility, and therapy sessions. I was also afforded a personal observation of the dolphins in their environment (see below). At the time of this research the four dolphins who worked alongside human therapists and trainers were Mateo, a male dolphin who was the most experienced and highly regarded by his human colleagues; Li-Na, a female who, despite her youth was regarded as exceptionally supportive and gentle with the patients; Chabelita, a young female with a boisterous personality whose specialty was playful interaction (Image 6.1); and Papito, a male dolphin described as “quite like a teenager, always testing boundaries [but who] became an advanced therapy dolphin…a fast learner” (pers.com. Head Therapist, 2014).

Three of the active therapy dolphins had been born at the Curacao Sea Aquarium. One, Mateo, had been born at a facility on the island of Roatan, in Honduras, along with a fifth dolphin, Gee Gee, who was available as a temporary fill-in therapist if one of the four were unable, or unwilling, to participate in a session. Gee Gee, the oldest dolphin (age twenty four) at the time of this research, was kept in a separate lagoon, sharing water with the main therapy lagoon on one side and the SWTD program at the Dolphin Academy on the other side, separated by fences. She was segregated from the other dolphins the entire time I was at the CDTC, accompanied by her young male calf, Noa, who had been born to Mateo and Gee Gee four months before this study.

All of the lagoons at the Curacao Dolphin Academy and Curacao Dolphin Therapy Center were linked as one body of water inside the coral boulder breakwaters that marked the boundary of the facility (see Images 7.2 and 7.3. In Image 7.3 the area at
the bottom right of the red outlined area is where Gee Gee and Noa were housed). The water was divided by constructed walkways and metal fences that allowed the water to flow through them. Thus, all the dolphins in both facilities shared the same water and were able to hear each other as well as the sounds in the entire facility.

Underwater sound moves very efficiently, almost five times as fast as in the air. Because dolphin bodies have evolved in water over the past thirty million years, their hearing is exceptionally keen as their primary sense. Sounds from ‘around the corner’ at the Academy lagoons were audible to me in Gee Gee and Noa’s lagoon (see below). Other research in other facilities has shown that dolphins can learn the asked-for behaviours of dolphins in adjacent bodies of water, despite not having been ‘trained’ to do so (Reiss and McCowan, 1993; Xitco and Roitblat, 1996). This has been of significant importance in the operations of the CDTC because dolphins from the SWTD program have been moved into the therapy program and have been able to adjust quickly to the therapy program, an apparent adjustment that was fostered by the physical proximity of the two different spaces.

**Four Therapist Colleagues**

Mateo was the oldest and most experienced of the active therapy dolphins. He was fourteen years old and had been part of the CDTC program since its beginning. He had been among the first dolphins at the CDTC to be habituated to be among human patients. As the CDTC was a ‘start-up’ program that began with no prior experience among the dolphins as therapists, and only the Dolphin Curator having prior human experience in DAT programs, there was a lengthy period of learning, training, and experiments at the program’s inception. The Head Therapist and the Head Trainer worked side-by-side for several years at the beginning, under the direction of the Dolphin Curator, to establish relationships with the dolphins in a unique training program that aimed to provide a previously-untried system of DAT. Based on broad mutual understanding between species, rather than strict enforcement of trained and repeatable behaviours, development of the CDTC program required special dedication.

Marco Kuerschner, the CDTC Head Therapist, worked with all of the dolphins as a trainer for the first three years of the program, as well as a therapist. He worked most closely with Mateo as a therapist, and a special bond developed between them. Marco described Mateo as being “like a pro, a master therapist, my closest colleague”
(Kuerschner interview, 2011) with unusual calmness toward both humans and other dolphins. The Head Trainer, who also worked with Mateo from the beginning of the CDTC program, described Mateo as “calm but dominant… he calms everyone down” (Delphine interview, 2011). However, at certain times during the year the trainers and therapists have to know how to work alongside the dolphins when they are being sexual toward each other. Mateo was described as being, at one time, “extremely horny. He didn’t want to eat, he did nothing with his brain… just lying there not really interested [in the therapy going on at the time]” (Delphine interview, 2011). To regain his participation, Mateo was offered time to himself, then interaction with another trainer, then invited to return to the patient he had been working with, which was successful.

The young male, Papito (age seven), was only rarely seen by me during the research project. He was observed working alongside a therapist and trainer team that chose to not be interviewed, and during times when therapy sessions were not scheduled, he was observed in play activities with the other dolphins in the large lagoon.

Both Li-Na and Chabelita had been born at the Curacao Aquarium and had originally been under a training program to work in the adjacent Dolphin Academy interactive swim program. Neither of them were found to be appropriate for that kind of interaction and were transferred to the CDTC. Li-Na and Chabelita were both six years old at the time of the research, and were described as “young ‘chicks’ who love to play, they love new challenges” (Delphine interview, 2011). Chabelita was additionally described as being

“…bored at the Dolphin Academy. She does a lot better during therapy because she is really keen on one-to-one interaction. She loves that. She’s a dolphin who wants all the attention for herself. She craves that so it’s great for her” (Delphine interview, 2011).

Another trainer shared her experiences with Chabelita:

“Now she's in a phase that she is learning her own way to do her therapy. Before she was going around now she's being creative on her own and I reinforce the work she does. So I did my job and I give more freedom. I give her more freedom to do her own kind of therapy. And she will turn her belly or she
will say "okay I can give her a hand and can guide her over there" and I am very
proud of that... she's very... she does a very good job.
She has learned a lot. She was a very over-active dolphin and that's very nice to
see because she's like me. Very active, so we're a good match and doing therapy,
when I send her to the kids, she is like… like she switch and she's completely
calm, making sounds…so that’s nice for the children” (Lette interview, 2011).

All four of the main lagoon dolphins, during times between therapy sessions, were
observed to be variously active. They would swim rapidly around the lagoon singly,
in pairs, or all together. Occasionally one would be seen leaping out of the water.
Most of the time was spent swimming slowly, in most cases observed to be with at
least one other dolphin. Occasionally one of the dolphins would come to below where
a human was standing, on a dock or walkway, and look upward at them. Mateo was
observed doing this several times toward me.

Careful oversight is needed by the dolphin trainers to provide good social experiences
for the dolphins, limited as they are to few companion dolphins. In regard to the two
young females, a trainer pointed out “if you only have young females I think you have
a kindergarten. They also need an older female to set rules and boundaries” (Delphine,
2011). This need was taken care of by Mateo’s calming influences and by the ‘backup
dolphin’, Gee Gee, who was nearby, a mature female.

**A Personal Experience Among the CDTC Dolphins**

As part of the support provided to me as a researcher the CDTC management offered
to let me swim with a dolphin to gain affective understandings as a non-participant
observer of its varied spaces. This enabled me to experience being alongside one of
the therapy dolphins and to witness the warmth of the water, the depth of the lagoon,
the sense of ‘representative nature’ to be found underwater – where fish swam
through and corals were growing – and to gain a perspective of the “large safe space”
(Kuerschner interview, 2011) inside the lagoon. I was offered a half-hour to swim
with Gee Gee and Noa.

The experience was delightful, reminding me of many other experiences swimming
among dolphins. Gee Gee approached me to within a meter, swam alongside me
looking into my eyes, then swam quickly away, Noa on her opposite side, Gee Gee’s body between his and mine. Noa was making his “signature whistle” (Janik et al., 2006) and Gee Gee was answering with her own occasionally. I could hear some of the echolocation clicks both dolphins were making, and some of the dolphin’s whistles from the nearby lagoons where an interactive swim program was going on. After about fifteen minutes of interaction, with me diving to the bottom of the lagoon (approximately fifteen feet) and having Gee Gee swim to and around me, investigating me and what I was looking at on the bottom (Pack and Herman, 2007), she came swimming toward me with Noa between us. She slowed down, bringing herself closer to me than before, and bringing Noa almost into contact with me. She stopped swimming and looked at me. I could easily see her eye moving, looking me over. Noa looked at her, making shrill whistles. Gee Gee whistled, then swam away quickly, leaving the calf beside me. I rose to the surface for a breath and Noa did also. We swam slowly along, side by side, then dove down together several times. Gee Gee rejoined us and we three swam slowly along the perimeter of the lagoon, Noa between us.

I returned to the platform where I had entered the water, and where the Dolphin Curator was waiting for me. A very experienced trainer, he had been the first person to introduce swimming with dolphins under human care to the world, years before. He looked at me with a smile and said, “Well, that surprised me.” I asked why, and he replied, “Gee Gee has never done that before, she usually does not trust people, especially men, to be near her calves”. This surprised me, as it seemed that Gee Gee was quite trusting and friendly toward me.

Later, two trainers commented on her demeanor. One trainer told me “Gee Gee doesn't like men in our team. She won't even come close to them without a child and we don't know why. Not that they ever did something wrong with her, she's just not comfortable with them…she is generally picky with people” (Analise interview, 2011). Another trainer described Gee Gee as capable of letting humans know of her feelings: “If she doesn't like something she'll make it very clear” (Lette interview, 2011). When questioned about this later the Head Therapist said that he felt that my previous experience with dolphins, swimming among them and learning ‘dolphin etiquette’, had been understood by Gee Gee and she felt unusually safe with me. The
Curator made comments later that he was wary of me as a researcher, had not trusted me, or my claim to be experienced among dolphins, and had put me in the water with Gee Gee “to test you” (Ernst interview, 2011). This experience highlights the importance of the CDTC dolphins as research participants and will be discussed further in Chapter Eight.

Proximities and Dolphin-Assisted Therapy at the CDTC

DAT at the CDTC is not limited to a short period in water when a human and a dolphin are in close proximity to one another. It can be understood as interplay of physical, social, and emotional distances with effects upon more than the patient. From its inception as a therapeutic possibility in the minds of a family through the long-distance travel to Curacao, all that leads up to the arrival at poolside contributes to DAT’s effects:

“The therapy is not two hours for ten days. It’s before the family comes here and they have the trip, they tell the kids they are coming. To me that is all part of it, of some whole idea. It is bigger as I see it, it’s more than meeting the dolphins, it begins at home. So they tried to already a little bit focus on the therapy and set goals, so they come here and have the therapy. I think it's a whole” (Regina, therapist interview, 2011).

One family described their experiences of the effects of decreasing degrees of distance and separation, which are understood to be an ongoing process:

“Wife: I think it starts in the dream, the dream that I always wanted to go, as soon as you start thinking about going... I think that's already part of it. Husband: For me it started… aaahh, getting on the plane and coming here to be a family together. In combination with all you learn here, and then putting it in practice and trying it when you're getting home. When you're swimming, you're thinking about it and you're doing it. So being here, we’re 24/7 in therapy. We’re thinking and talking about everything we're learning here and putting it into action” (Karl family interview, 2011).

Family involvement in the therapeutic process is a key to DAT at the CDTC, where it is a practice of inclusion, of diminishing social distances between ‘abled’ and ‘disabled’, fostered by the bodily proximity of dolphins. The CDTC experience brings humans into a relational, and liminal, environment of altered proximities. There, the
bodily presence of dolphins in an exotic setting, having drawn a family from thousands of kilometers away, serves to open a ‘black box’ of therapy so that knowledge connections are improved, as described by a therapist:

“DAT delivers a very natural setting, outside, palm trees, sunshine, ocean breezes and smell. Also they usually travel as a family, together, away from home and away from all the daily “problems”. Fathers are more involved than usual, siblings as well. Everybody plays a part in this kind of therapy. Usually, at home, the mother drops off the child at the clinic, with the Physical Therapist, the Speech and Language Pathologist, or Psychologist, and picks the child up an hour later with little clue what is being done, why, and how different symptoms are connected” (Susanna, therapist interview, 2011).

Family dynamics can be directly affected by DAT. Witnessing the affective experiences of their patient/children, parents watch the DAT sessions, often capturing video and photographic records of these moments for future review. Using the technologies of zoom lenses on cameras to collapse distance and increase perceptual proximity in the DAT lagoon spaces, from distances of 50 meters or more the perceptions of the patient by their parent are often changed. As a therapist described it,

“[i]t's not only the child who has fun and has a good time and gains improved functionality. It's about the changed perception of the child and their function in an environment. If you change the child, you change the dynamics of the family, totally. If you change the perception of the child, if you change the way the child is seen, you also change completely the family” (Kuerschner, Head Therapist interview, 2011).

This can lead to changes in the interpersonal relations within the family, evidenced in greater affective closeness between family members. One wife tearfully described her changing relations with her husband and family as that of ending psychological distance and isolation, merging into a new relatedness during their experiences of DAT on Curacao:

“I think normally you're on your own little island by yourself, but right now, for me, for the first time, we are a family. There's no argument. It's like melting together and having this experience together as a family. We’ve had a
lot of medical problems with our son, he had heart operations, and his stomach…[tears up, unable to speak for a moment] … so we were, of course, close with him, but coming here as a family has really brought us together closer as a family… here it feels like we have so much hope. We feel like we have had a new start. Yes, absolutely” (Klaus family interview, 2011).

Another family member described the traversing of intimate emotional spaces wrought by DAT, opened by the proximity of the CDTC dolphins:

“When [our daughter] is relaxed and happy in the water, that goes to everyone in the family… We feel the dolphin is an animal who makes you more open. So working with the child it helps them open in so many different ways. But also the family opens up in many ways. At home I was not able to cry anymore for some reason. At home no emotions were coming out of me, for some reason. And then coming here and being with the dolphins, suddenly, even though I didn't want to cry, there was an opening. I felt something very emotional and I was able to cry again” (Denke family interview, 2011).

Some critics of DAT have described it as “…asking people to mortgage their homes and fly halfway around the world to swim for five days with a dolphin” (Gregg and Marino, 2008) and give a general description of it as:

“Basically, it involves patients, either children or adults, entering the water with captive dolphins, typically, and they engage in several activities from swimming with and riding on the dolphins to just touching the dolphins, to feeding the dolphins…” (Gregg and Marino, 2008, np).

These descriptions of DAT as simplistic programs of swimming with and ‘just touching’ dolphins do not reflect what parents said in interviews. They provided evidence that the experience of the CDTC program entails hard, transformative, valuable work for the patient:

“We know that when our child comes here he has to work very hard. We ask a lot of him. He comes here, he works hard, everyone works together, and progress begins to happen. After the hard work, and he gets in the water, you begin to see the difference. In the classroom, in the clinic, and on the platform, there is work to be done but in the water is a fun time, so in the water is the
reward. It is the fun time for all the hard work that was done” (Schultz family interview, 2011).

The intensity of the CDTC therapy program, often overlooked when DAT is envisioned to be ‘water play with a pleasant dolphin in a holiday atmosphere’, is reflected in this description of the compression of therapeutic time that occurs in the working environment of the CDTC: “Here you have 20 hours in 2 weeks. Normally, at home, she has 20 hours in 20 weeks. So it's very intensive.” (Kraus family interview, 2011).

Disruptions to family lives are frequently part of the DAT experience. The ‘flying half way round the world’ comment (above) refers to the displacements required. For families at the CDTC, when asked what the most difficult aspect of DAT is, they responded in near-unanimity (twelve out of thirteen): the travel required. It was not the financial issues or overcoming ethical concerns about ‘captive dolphins’ but instead was embodied in the very real challenges of moving a person with (sometimes severe) disabilities from one continent to another, across thousands of kilometers for an extended period of time in an enclosed and foreign space, an airplane. One family described it this way:

“The hardest part was the flight over here…the long flight. Mostly the time before the flight, getting everything organized, and then the luggage, the buggy, the drinks… it made her very stressed and upset” (Gearhardt family interview, 2011).

Families travel to various locations for DAT. Shorter distances and less time in enclosed space is preferable:

“We wanted to go to Florida but we couldn't fly such distance, so we decided to go to Turkey. …(w)e didn't know if she might have severe seizures so it was safer to fly over land. We thought we would try it and then try the nine-hour flight over the ocean [to Curacao from Holland]. Sometimes she has seizures and she's difficult to handle and very angry and aggressive sometimes” (Kraus family interview, 2011).

Another family’s concerns centered on how their daughter’s nutritional needs would be met in the necessary socio-spatial disruption:
“The first thing was, we were concerned about the trip because it's a very long trip from Germany. But then also to keep up the quality of life for our daughter, because she wasn't going to be having a feeding tube in, we wanted to be sure she was going to keep up her feeding. And coming to another country, we didn't know if we're going to be able to keep that up to the necessary level” (Denke family interview, 2011).

These socio-spatial factors loom large in the lives of families seeking improvement in their child’s (and their own) quality of life by means of DAT and are unacknowledged in the oppositional dimensions of the DAT discourse.

Although overcoming the lack of proximity to dolphins was identified as the most difficult challenge in the DAT experience by a significant number of families, the emotional closeness that resulted from the hard work of the CDTC program was cited as its counterbalance. In the next section, participation in the CDTC program is shown to have effects beyond the intimate proximities of the contact zone.

Effects of DAT Beyond its Community of Practice
The socio-natural processes of DAT cause effects beyond the intimate space in which dolphin, patient, therapist, and trainer come together in the water. Human families are affected, providers and practitioners are affected, and local communities spread across the globe are affected. In this way various agencies are at work in DAT’s hybrid socio-spatial processes, unreported prior to this research.

Costs and Consequences for Human Families
DAT is expensive in most places, an important factor recognized in both its oppositional and supportive arguments. At the CDTC, the cost is made higher by the necessity of long distances to travel for family groups for two weeks of therapy. In each of the interviews in this section there is the presumption that dolphins and their peculiar charisma have been instrumental in producing the effects described.

Some families struggle to raise the funds, but most of the families interviewed at the CDTC reported that there were positive social consequences of addressing this expense, redrawing social boundaries and creating connections where none had
existed. In the following lengthy quote a therapist describes many aspects of what CDTC therapists have learned about the social effects of this process:

“What we've learned here, as therapists, is that they're very flexible and they have crazy and beautiful ideas about getting the money together. It's not just about getting donations from other people… They may make things that they sell, or they do concerts, or really it's nice to see what they do to overcome the obstacle of the financial. So the obstacle is not necessarily negative. You can generate something positive of course. What we see here, if they do those kind of concerts, it becomes an important event. The whole town becomes involved and everyone joins in and it's also a fun thing and it needs organization, needs people, it needs some help from outside, but I think it makes people connect and interconnect with each other… I think when they do these events it helps people to become more open to people with special needs, and the whole community gets helped, definitely” (Mary, therapist interview, 2011).

Of the thirteen families interviewed, three reported having adequate personal financial resources to fund their own trips to Curacao and the cost of therapy. A member of one of these families commented:

“Most of the other families have to collect the money and people in the community help them collect the money and that is very nice. Very nice” (Kraus family interview, 2011).

For the remaining ten families interviewed, each said that the financial challenge presented by DAT at the CDTC was met by a combination of family resources and donations. One family told the following story about how some funds were raised by a community without the family having sought them:

“By coincidence, we went to buy a mattress for our daughter and when we went to the shop to buy the mattress they offered to donate it. It was a waterbed for her. The store decided to tell someone from a newspaper the story and they mentioned that she was going to do dolphin therapy and put a bank account number for donations in the newspaper article. When the article was published we got lots and lots of donations” (Unzer family interview, 2011).
The funding of their DAT experience, for some people, has reaffirmed their sense of community after having been turned down by institutions:

“We went to try to get insurance but we couldn't get it. I was shocked. So we got donations, little donations and big donations …other people did it for us. They went to foundations and wrote letters. People helped us tell her story and they were so very kind. It was people we knew and people we didn't know. It was incredible, unbelievable” (Gearhardt family interview, 2011).

In each of these instances the local community produced new local social spaces for families of children with disabilities in anticipation of DAT’s affective performance in intimate proximal spaces many thousands of kilometers away.

**Effects of DAT Across Human Communities**

The generation and dissemination of knowledge is part of the ongoing effects of DAT. In some cases local communities have become better informed about local neighbors as well as persons with disabilities in general. Several families at the CDTC spoke of how the entire DAT experience has led to a much larger community of people learning about disabilities and how DAT can play an important part in building bridges into the local community. One family described it this way:

“… our website already has 20,000 hits … and it goes like a domino. … I think there are a lot of people touched by the story. We can teach our community from what we learned here and we will have to teach the teacher at school what we have learned. So it's that. This will not be the end of the story. There will be that kind of work” (Karl family interview, 2011).

Due to skepticism about DAT, one therapist points out the tensions produced between differing regimes of knowledge that some families must engage with:

“We get the opinion of a lot of physicians who say these are therapies which have no effect next to petting an animal. Families don't get support from these physicians, nor from other therapists and sometimes that goes for teachers in schools as well… Sometimes I get e-mails from families saying how frustrating it is because the teachers won't deal with the advice they get from the family” (Nina, therapist interview, 2011)

This can lead to re-evaluating the schools where patients go and movement to different schools were DAT is embraced:
“The first school that she went to, they wouldn't listen to anything that I said to them [about what was learned at the CDTC]. But now she's in a special school. And they pay attention to what she knows” (Kraus family interview, 2011).

Interpersonal spaces are opened and affected by the foregrounding of children with disabilities in communities as a result of the DAT practiced at the CDTC. The distal knowledge of local communities, far from Curacao, requires balancing by the proximal knowledge constructed by families:

“People were asking "How does it go? Did you relax and you have a good time?" They don't necessarily see that it's work for the whole family. It's not just a vacation, it's truly therapy… they don't know how it is to live with a handicapped kid. Not knowing what difficulties that might bring and what you have to do extra or different than a regular family. So therefore they are sometimes insecure in asking about how we live and the therapy and so they pull back a little bit. But the people who are really interested are very helpful” (Denke family interview, 2011).

Another family has worked within their community to clarify DAT’s role in their child’s progress, constructing important new understandings of disability:

“…the community has very high expectations, but we have tried to lower those expectations because we realize we cannot expect any miracles here. We can tell that our friends are not aware of how it works at a dolphin therapy center. We had to tell them, “For us small steps are big steps.” As a family we see progress and are very aware of the small steps that other people may not be able to see” (Schultz family interview, 2011).

**Socio-spatial Effects on Providers of DAT**

The effect of dolphin therapy on therapists and trainers in the field of DAT is often overlooked. The spatial effects, from relocation to relationship change, from cultural lessons to work improvements and life re-evaluation, as well as the therapeutic effects upon the trainers and therapists themselves, producing a mutually beneficial environment, were all evident in interviews conducted at the CDTC. One therapist described the effect on her own philosophies and personal spaces:
“I have never experienced any other setting where I have been continuously amazed, thankful and highly motivated to work and get engaged in what is asked from me in that specific moment. The effects that it has on children it has on the therapist as well. You are surrounded by happy people, great weather, successful therapy and this daily experience made me feel at peace and very relaxed. I have learned to be playful again, being in the moment, being thankful. All that I have been taught by the children and the dolphins” (Stephie, therapist interview, June 2011).

A trainer described important displacements in her life, crossing from one kind of ‘production line therapy’ to a less restricted work environment, and how she had to accept change and the sacrifice of a relationship to do so:

“I am happier. I was feeling in Germany I was working in a factory, because I saw so many patients. I feel I can help more. I can actually reach goals which I didn’t have the feeling of in my work in Germany. I worked in Germany [as a nurse] for 10 years and then I came here. I had to give up a relationship with my boyfriend and I got a chance to work with the animals and so I changed to come here. So it was a really big change.” (Delphine, trainer interview, 2010)

Another therapist described similar socio-spatial displacements as positive affective, physiological and social aspects of work at the CDTC, requiring sacrifice but affording new relationships with nature and her own body, and the likely future social and occupational consequences:

“I had to leave everything behind. It was big adjustments. You have to make adjustment to a completely different way of life. Now I'm outside a lot more, I’m more together with nature and with the dolphins, of course, so that's for me a big plus, and I feel it also. Of course I feel it's sometimes physically challenging what we are doing, but I have a feeling that my body also benefits from it. Of course it's hard work for the body, but I feel it advances you more. I'm tired in the evening of course, but with a good feeling that you did something important and did benefit for another person. That's a big, for me a big difference from what I experienced in Europe. …it's very limited where you can go. I have no clue where I could go. I probably will not find similar job somewhere else in the world” (Helga, therapist interview, 2011).
Personal life philosophy is affected by participation in the delivery of DAT at the CDTC by transgressing normalized spaces, opening ‘windows’ onto other lives, building affective connections to others, as described by a physical therapist:

“I chose to move here, to do this job. I've been here for 6 years now. But I think it's not negative. It has changed my life in a positive way. Working with the animals and also, working with the kids mostly, just gives me another perspective on life because I see what the families go through and I see what kind of obstacles they have to overcome. And still they are happy” (Mary, therapist interview, 2011).

The effect of DAT on the professional skills of therapists, as practiced at the CDTC and other ‘mainstream model’ facilities, has bridged gaps between professional disciplines, redrawing former boundaries and opening affective processes to other practitioners, and has the potential to affect therapeutic practice in a globally distributed network, as inferred by a therapist:

“I learn a lot, not only from dolphins, but also working in a multidisciplinary team. When I started working as a psychologist in Germany I was quite isolated in my profession. When I came here I started realizing that I could help by having the child stand up to help them feel big and strong. So working also on the body has a basic effect on the psyche. Actually that's quite normal and very logical, but the way we worked before, every discipline did his own job and sometimes it was not possible to have team meetings. And now I have a team where everyone just works hand-in-hand and you can get so much input from other professionals. And if I feel like I don't know enough about a field, I can bring someone into creative therapy session together with them. I think that has had the biggest impact on my professional life” (Nina, therapist interview, 2011).

The work and the lives of dolphin trainers is demanding, challenging in a variety of ways. The physical work can be hard. The emotionally intimate spaces involved can be daunting, requiring new openings, strategic closure, and ongoing maintenance and the personal philosophy of the trainer can be deeply affected, as revealed in this lengthy excerpt:
“It's a hard job. It's not all fun. It's hard work and a lot of cleaning. For your body it's pretty heavy. Sometimes the swimming and diving and cleaning, you have to lift heavy things. You have to work with fish all day. In the cold, in the air, and you're wet so you have to be healthy and strong. It's different from being on the computer all day. You have to be strong. And also it's emotional, you know? There are animals dying sometimes. Sometimes pregnancies don't work out, so sometimes emotionally it's pretty tough. You have to deal with that, you have to be able to deal with that, because of course you love animals and you bond with them. Sometimes it's pretty hard… it's sometimes difficult to see the kind of children come here, to see their handicaps, or they had an accident. They were before normal children, normal people, even of your own age, and they fell from a horse, they had a car accident. And in one moment all their life is completely different. Sometimes it makes you think about your own life and how lucky it is that you're healthy and able to do everything” (Analise, trainer interview, 2011).

Interviews with DAT providers at the CDTC, although a limited sample, indicate that more perspectives on DAT exist than have, until now, been part of its discourse.

Chapter Summary
This case study has served to gather evidence from a single DAT facility, where the mainstream model of DAT is practiced. The role of the physical environment, the geo-political environment, the social environment of Curacao, and the organizations that have collaborated to produce the therapy program at the CDTC have been described. In doing so, various socio-spatial constructs have been developed to critically analyse the practice of DAT as a mutually dependent interspecies collaboration. A brief description of the individual dolphins at the CDTC was included to overcome the normalised view of non-human animals as species representatives, instead situating them as agents with individual characteristics. This case study has uniquely gathered evidence of the socio-spatial effects of DAT within and beyond its community of practice. This opens new ways of understanding DAT, extending its definition across a more inclusive scale of relations that includes theories, individuals, practices, experiences, resistances, places, and spaces.
Chapter Eight: Interpretation and Discussion of Findings

This chapter draws on geographic scholarship to develop interpretations and understandings of the findings presented in the two discourse analyses and the case study in chapters 5, 6, and 7. Using the emergent themes of these findings, it aims to illuminate new understandings within the context of international scholarship.

The key concepts that will be explored, produced in response to the findings in this research are:

1. Hybrid Proxemics: how degrees of proximity affect understandings of human-animal relations and how proximities affect regimes of knowledge.
2. Transgressions and displacements: understanding the crossing of boundaries into different spaces as a result of various agencies.
3. Hybrid Geo-ethics: a new formulation of ethical theories necessary to understand and guide actions regarding human-animal spaces.

Spaces of Interaction: Proximity and Proxemics

This research required the development of a range of understandings about DAT that were lacking in its discourse. In seeking to understand the various definitions of DAT within and beyond its practice, the recurrent theme of proximity emerged. The study of spaces that humans psycho-socially construct, proxemics, has been undertaken within sociology (Hall, 1966). It is used here as a thematic lens to view the types of proximities that are observed between dolphins and humans in DAT programs and to interpret their discursive constructions.
The differences in spatial ordering, that is, different distances apart, have been shown by Hall (1966) to be conducive to levels of psychological ‘comfort’. Intimate distances are defined as closest, from touching to within touching distance. ‘Personal’ distance is next in distances apart and ‘social’ distances are understood as being greater still, followed by ‘public’ distances (Hall, 1966). Adopting the notions of ‘proxemics’ for understanding the psychological ‘comfort’ experienced as two species interact offers insight into the socio-spatial relations between humans and dolphins. For instance, proxemics enables a mapping of where humans and other animals might feel comfortable with each other’s presence:

“Proxemics has been of immense importance in environments such as zoos, circuses and wherever there is human interaction with other animals: it helps identify the line where an animal might feel under attack, dominated, vaguely intimidated or comfortable with the presence of another” (Cobley, 2010, p. 300).

Although Hall (1966) originated the study of proxemics, he did not explicitly address interspecies proximities, which has since been adopted by others for interspecies research (Fredrickson-MacNamara and Butler, 2010, p. 123; Argent, 2012). His research was based in part on observations of non-human animals’ spatial requirements, which expressed in nature as normalized physical distances between individuals, including humans. As such, proxemics embodies the hybridity of socio-spatiality across species.

Hall’s four-phase model of spacing (1966) describes public spacing as the greatest distance apart. For humans ‘public spacing’ that is twenty-five feet or more begins to match the requirements insisted upon by opponents to DAT who base their opposition on challenging the presence of dolphins in a built enclosure. For opponents to dolphin enclosure, standing on a seashore gazing out to sea and seeing dolphins in the distance, which is the unlimited upper end of the scale of public spacing, provides the psychological ‘comfort’ between species that Cobley describes. It can also be said that dolphins living in oceans seem to prefer ‘public spacing’ as well, staying beyond human contact except in unusual circumstances such as those found among ‘single solitary dolphins’ (Goodwin and Dodds, 2008), where habituated dolphins approach humans along shorelines (e.g., Neil, 1998; Smolker, 2001) or where dolphins who, for

The close proximity of dolphins to humans in DAT can be understood as an intentional erasure of the borders between/around species’ separation. Over the past 75 years (Couquiaud, 2005), dolphins have been crossing the border surrounding human domains. This is the result of the exercise first of human agency in the service of curiosity, and over time, as marine animal rescue efforts have become normalized in some countries, and as reproduction among dolphins living in built environments has occurred, as a co-constructed effect. Dolphins living among humans are liminal animals becoming different from who they were, having entered and co-constructed liminal spaces where water and land meet.

Currently, dolphins in DAT programs occupy a variety of physical spaces built by humans that offer varying degrees of interspecies proximity. Some of these are enclosures of shoreline habitat, an abbreviated ocean-scape where dolphins have not experienced total dislocation from their ‘native habitat’. Others are entirely artificial, often at a distance from a shoreline, technologically sophisticated built environments in which the water the dolphins occupy is artificially created ‘sea-water’. Sometimes these built environments are fully enclosed while others are open-air pools.

In all of these facilities constructed features are designed to enable close proximity to dolphins. These range from a kind of public distance where observation by gazing on dolphin bodies and behaviors occurs from grandstands, to the social distances of walkways alongside pools, to personal spaces where persons can stand at poolside and experience intimate and haptic contact with the dolphins. This may include wading into the water, or sitting on floating platforms, or use of powered lifts for wheelchairs to be lowered into and raised out of the water, affording intimate proximity to dolphins as described in the case study.

These features erase distance, selectively altering the ‘norm’ of distance between species. For those who support the interspecies contact of DAT, this is not problematic. For those opposed to DAT, this is a central problem, an erasure of
distance that is understood to be ethically unacceptable for various reasons (see discussion of Geo-ethics, below), as discussed in the discourse analysis.

Spaces for interaction between species have been variously constructed and span all distances, all degrees of proximity. Roadside stopping points to observe wildlife from inside automobiles, wooden walkways across wetlands, touch pools in public aquariums, and petting zoos are among the many kinds of constructed interaction spaces. Where proximity decreases from public, social, and personal distances, entering into spaces of intimacy, oppositional and supportive discourses can sharply divide (WDCS/HSUS, 2003). As Metcalf points out, “[t]he proper practices of proximity cannot be negotiated without also taking intimacy into account” (2008, p. 126). Those spaces that afford the most intimate proximity, including those needed by DAT patients, are found by some to be ethically unacceptable.

The intimate physical spaces of DAT stir passionate opposition from some whose distal knowledge (see below) of DAT supports inferences of inappropriateness. There are parallels between opposition to DAT and opposition to bestiality (Brown and Rasmussen, 2010). Both construct arguments about intimacy as transgressions, border crossings, based upon the supposed lack of agency of non-human animals and their inability to consent, their ‘innocence’, and constructions of intimate interactions as abuse. To understand how the notion of unacceptable proximities is contested, the trope of the ‘contact zone’ is enlisted in the next section.

Proxemics in the Contact Zone

The geographies of the contact zones of DAT are described differently in the supportive and oppositional discourses. For those within its supportive community of practice, who describe DAT’s dolphins as colleagues and/or companions in shared meaningful work, the contact zone is understood as mainly life-enhancing, where ‘power with’ each other is performed daily (see figure 7.1). Examples of the socio-spatial effects of work along species boundaries, taken from interviews with providers at the CDTC, open a new dimension of the affective consequences of dolphin-oriented therapies. Understood as ‘positive transgressions’, these examples in which trainers and therapists experience positive outcomes for themselves due to their work in DAT challenge opposition to DAT as a product of economic rationalism producing
displacements with ethically unacceptable outcomes. This supports construction of new arguments for its value to humans beyond the patients normally understood as its beneficiaries. Families, communities and the providers themselves are identified as beneficiaries of the intimacies afforded in the contact zone.

This understanding of the role of dolphins in contact with humans is not universally applicable, however. Participants in the case study in chapter 7 make an exception, as do opponents to DAT, if the dolphin’s presence originated under circumstances of capture. For some within the community of practice, however, this does not pose an ethical barrier to their embrace of the contact zones of DAT, which highlights the complexity of the varied constructions of DAT.

For those who oppose DAT and who describe DAT’s dolphins in essentialist terms as ‘captive free-ranging animals’ (e.g., Brakes and Williamson, 2007), the contact zone is one of ‘power over’ in demonstrations of dominance, with inferences of moral incorrectness as shown in chapter 6. In this view reproduction is understood as ‘breeding’, controlled (scheduled and overseen) by humans, and deaths are understood as evidence of the universal failure of the ‘captivity industry’.

How dolphins are cared for in these spaces is a concern in both supportive and oppositional discourses. In general, both seek non-suffering, that is, they both express concerns for the welfare of the dolphins, aligning the two discourses. However, as described in chapter 7, those within the community of practice conceive of the welfare of dolphins in terms of individuals with situated lives already dependent upon humans. The contact zone of DAT is understood by providers to extend throughout the relations of humans with dolphins, beyond the brief periods of contact with patients, to include the full-time, year around, intimate contact zone of care shared between dolphins, trainers, and therapists, as described in the case study.

Dolphin protectionists, outside the community of DAT’s practice, generally advocate for a broad, species-based welfare based on inherent ‘rights’ that requires dolphins to live outside of human care (e.g., White, 2007; Stewart and Marino, 2009). In proposed sanctuaries as alternatives to present enclosures, the contact zones of dolphins on track to be released into the ocean are to be reduced over time, a socio-
spatial reduction of the amount and qualities of human interaction with these dolphins (Stewart, 2006). Proximity to dolphins, understood in oppositional terms as a key problem, is to be gradually diminished until there is none. No estimates are made as to how much time it will take for any one dolphin to prepare for its life ‘outside’. This period of preparation, as the contact zone with humans becomes less and less accessible to the dolphins, is intended to divide the relationship, excluding them from care. As a bio-political act of displacement necessitated by ideological constraints, this is a spatially significant choice by humans. This choice is reflected in published texts in support of ‘opening the nets’ as an ethically unequivocal imperative.

The contact zone and proximity to humans is variously conceived in the DAT discourse, either as a requirement for survival where dolphins are understood to be entirely dependent upon human care and fundamentally alienated from ocean life, or as the very thing that threatens dolphins’ survival, a contact zone in which dangers for all concerned are evident due to inappropriate proximities\textsuperscript{41}. Understanding opposing notions of proximities requires a type of “situated engagement” (Suchet, 2002). Suchet’s concept of situated engagement with ‘Others’\textsuperscript{42}, in which “embodied, open-ended, situated processes [unsettle and challenge] universalized assumptions” (2002, p. 153) describes such a space. By being situated within, and engaging with, opposing onto-epistemological realities progressive degrees of resolving the many boundary disputes between human and non-human animals (Wolch and Emel, 1995) can be better theorized and described. In the case of the dolphins of DAT, a situated engagement with the histories of each dolphin is needed to determine whether it is, as opponents claim, a ‘slave to greedy opportunists’ or a liminal animal whose life requirements are fully met, it is well cared for, and is living in a condition of liberty with its life enriched by being engaged in DAT. Some dolphins will not be found to be living in situations such as those described, while others will. The lack of homogeneity among individual dolphins and their living circumstances requires situated engagement to evaluate them.

The section in chapter 7 that focused on the individuality of the dolphins at the case study site offers a glimpse into their situated histories, and how engagement with a dolphin in intimate proximity can reveal, across species borders, new understandings
of the potential for non-human animals to become participants in research. Each of the four primary therapy dolphins took on identities with specialized styles of engagement and agency. The ‘backup/mother’ dolphin occupied a social space to which she had been assigned as a result of human perceptions, then demonstrated her agency in transgressing her assigned place, opening her own and her human carer’s relationship with the researcher. As liminal animals, the dolphins living at the CDTC became “visible” (Johnston, 2008, p. 646) by means of a “responsible anthropomorphism, attending more closely to understandings of nonhumans garnered from the practice and experience of co-relationality” (2008, p. 645).

The contact zone of DAT is, then, a network of relations, where the supportive and oppositional discourses connect and diverge. The complexity of the biopolitics of the contact zone, with shared non-acceptance of capture as well as overlapping concerns for welfare, construct widely divergent notions of ‘what is best for the dolphins’. ‘What is best for the dolphins’ becomes an open question answerable by situated engagement, rather than an essentialist claim to knowledge. The application of situated engagement, in which individual dolphin’s life narratives are considered, can further the work of animal geographies by re-conceptualising how different regimes of knowledge shape the complex field of DAT and other human-animal relations, as discussed in the next section.

A Hybrid Proxemics: Proximal and Distal Knowledge

This research draws on the concept of ‘symmetrical language’ from Actor-Network Theory, referring to the hybridity of sociospatial evidence in terms of proximities, to support hybrid understandings. Physical distances are understood here to be of equal importance to the distances between regimes of knowledge, leading to a ‘hybrid proxemics’.

Degrees of proximity can be understood as variously productive, affording kinds of knowledge or understanding. These have been called proximal knowledge and distal knowledge (Polanyi, 1966). Close proximity leads to proximal knowledge. Distance leads to distal knowledge. In the words of Hetherington:
“Proximal knowledge is performative rather than representational. Its nonrepresentational quality is also context-specific, fragmentary, and often mundane. This contrasts with distal knowledge, which generally implies a broad, detached understanding based on knowledge at a distance or on a concern for the big picture. Distal knowledge is largely established through representational practices… in which the ‘thing’ being known is assumed to be in a stable and finished state and thereby amenable to representation” (2003, pp. 1934-1935).

While representational practices do generate important distal knowledge related to DAT, such as the statistics derived from psychological test instruments, the majority of data useful to the practices of DAT is proximal in nature, derived from close proximity to its performative personal and intimate spaces. Generalizations about DAT do not fare well when critically examined in comparison to situated, proximal evidence from research undertaken at a DAT facility, as chapter 7 has shown.

Proximal and distal knowledge serve as a basis for theorizing about DAT, mostly helping to differentiate between supportive and oppositional views. However, there are different degrees and types of proximity that afford these kinds of knowledge. For some theories about DAT the most important interactions between human trainers, therapists, patients, and dolphins are haptic, intimate encounters. In two key hypotheses about DAT’s possible physiological effects, the effects are based on micro-geophysical energy waves, dolphin biosonar, serving to mediate change across moderate distances between humans and dolphins (see Appendix F), suggesting that less intimate proximity might be adequate for dolphins to affect certain kinds of patient outcomes. In addition, what has occurred in close proximity to a dolphin may be taken into other spaces in the forms of memories, photographs, and other affective impressions of intimate proximities, which may continue to produce effects. Distal and proximal knowledge categories are not fixed or mutually exclusive, but have overlapping and intertwining topographies (following Hinchliffe et al, 2012). Thus, degrees of proximity must be carefully assessed in any formulations of their relative importance.
Some theorizing about DAT depends upon evidence from technologies designed to afford analytical access to internal, psychological spaces, a mixture of distance-by-electronic-mediation and a kind of ‘meta-physical’ proximity, in the form of electroencephalogram representations of brain states. Other theories have sought to resituate DAT into constructed spaces entirely apart from water, dolphins, and the ocean environment, using audio-visual technologies or animatronic simulacrums to replicate the intimate proximities of DAT, with less apparent success. This points to the varied possibilities when using the hybridity of proxemics to understand relations as therapeutic engagements.

Nathanson chose to test the relative efficacy of therapy with a full-scale, highly detailed and ‘life like’ puppet, as compared to therapy with living dolphins. The article based on this research (Nathanson, 2007) is a testament to the liminal status of dolphins as unstable constructions in human projects. It shows the permeable boundary between distal and proximal knowledge domains, the hybrid ways in which to explore dolphin-human interaction, and equally, the ways nature and culture are entwined by technologies.

In oppositional arguments in the discourse, proximal knowledge of DAT is largely absent, with distal knowledge predominating, drawn from representations and re-representations of DAT and serving as bases for arguments. Key oppositional texts produce generalizing inferences, a distal kind of knowledge. They have been produced at a distance from the facilities, waters, therapists, and other intimate and liminal spaces of dolphin-human relatings. Four key examples of this kind of research consist of reviews of methodologies used in DAT research (Marino and Lilienfeld, 1998; Humphries, 2003; Marino and Lilienfeld, 2007b; Fiksdal et al., 2012). While important findings were produced, helping to specify standards of reliability for further research, they are derived from multiple degrees of distal representations. They depend upon distal representations of the proximal, affective, intimate (and subjective) performances of DAT, and “the ‘thing’ being known is assumed to be in a stable and finished state” (Hetherington, 2003, p. 1935). As shown in the case study, therapists’ and trainers’ proximal and relational knowledge produces a different description of DAT as highly variable, unpredictable, and dynamic. As such, the oppositional and supportive discourses can be differentiated on this basis. This
indicates a new direction in future animal geographies research, to include proximal knowledge drawn from close proximity to the bodily presence of the animals. Doing so will develop more thorough, situated, and individualized understandings, as called for by Bear (2011) in his revealing, and near-intimate, study of one octopus.

Distal knowledge, while important when seeking broad understandings and generalizable knowledge, may not be applicable to understanding contact zones based on intimate proximity and proximal thinking. In a peculiar way, the intimate proximity of dolphins to persons with disabilities in DAT and the therapeutic comforts this is said to bring seems to cause psychological discomfort to those who oppose DAT despite not being close to dolphins themselves. Analysis of these two approaches to understanding disconnected affective experiences afforded by degrees of proximity reveals more of the ways in which DAT’s contested spaces can be understood as onto-epistemologically distinct. These opposing spaces are constructed as regimes of truth derived from different kinds of knowledge production. This suggests that these distinctions should be attended to in understanding research in other animal geographies.

Transgressions and Displacements
The holistic design of DAT involves dislocations of many kinds, with families sometimes required to endure traveling great distances to access its specialized environments, with the consequent disruptions for their children with disabilities. It requires them to enter constructed simulations of natural environments designed to place them into the non-airy space of deep warm water and to place them into an intimate contact zone with a large exotic animal. As such, it can be argued that DAT takes place in a ‘liminal zone’ of transitory displacements. As therapeutic goals are achieved former limits to a patient’s physical and psychological abilities are overcome and new kinds of behavior, support, and understanding occur for patients and their families. Not for all persons does this occur, of course. For some, the physical and psychological challenges are not compensated for by successful therapy, and the travel, effort and expense do not yield meaningful results. However, an affective re-placement of limiting concepts, as well as physical and emotional limits, does take place for many participants in DAT. Families who experience DAT report
significant change as purposeful transgressions support the re-evaluation of personal worldviews. These may affect relations with their children, their family, and their communities.

DAT is intended to produce effects and is itself a relational effect of a network of interactions. It depends upon the active becomings of social and spatial elements including physical enclosures subject to water’s effects, ongoing relations between heterogeneous actants both living and otherwise, and bio-political negotiations. By simulating a natural space, a body of water enclosed in a garden-like setting, heterotopian spaces are created for DAT. Heterotopias reflect the world, as “enacted utopias” (Foucault, 1967), sites that embody affective states, where a ‘purification of the world’ resituates elements of nature in constructed space. To build a DAT facility is to construct an idealized miniature world, where efforts at human control are made manifest in the face of uncontrollable aspects, requiring processes of negotiation with water, dolphins, weather, and the varieties of human meanings attributed to the presence of dolphins. A controlled, constructed space, a DAT facility is designed to offer a safe portal to another world, one in which many norms are challenged and remade. It is the intentional design of a DAT facility to transgress normative states. Here transgression is understood to “…contain ‘the seeds of new spatial orderings’. It may, through becoming part of strategic struggles …contribute to social and spatial transformation” (Pinder, 2009, p. 770).

A variety of normative transgressions and displacements are observable in DAT sessions. Children without the ability to move independently are lowered into water where otherwise free-ranging large animals have been confined with the expectation that mutual effort by several humans and the large animal will bring about changes significant enough to justify the deployment of advanced technologies and high expense. These transgressions and displacements challenge borders deemed uncrossable from the perspective of ‘the norm’ and reveal and differently perform life and its relatings. Both human and non-human bodies in DAT, normalized as ‘out of place’, are transformed into new sites of relations fostering wellbeing by means of displacements made possible by technologies. Transgressions of spatial orderings become enactments of social transformation as natureculture. This reveals a
natureculture that is a result of challenges to norms, utilizing transgressions and displacements to overcome separations and to regain the unity that lies at the heart of the concept of natureculture. Animal geographies can open to the possibility of transformative displacements and the new possibilities afforded by well-informed transgressions, as this suggests. As such, Whatmore’s hybrid geographic theories (2002) are supported by this research. It reveals how socio-spatial understandings can inform planning for relations between species as ‘situated engagements’.

Conceptually, DAT facilities can be understood as portals for a departure from the known, enabling entrance into a space where the unprecedented is possible. Called by Foucault (1967) heterotopian space, the ‘garden’ setting in which dolphinariums are typically situated reflects a kind of constructed perfection, an orderly world of natureculture. The playful and the health-giving elements of human-animal interaction are set in a space where “a sort of absolute break” (Foucault, 1967, np) has been constructed so as to facilitate change. Foucault defines heterotopias as ‘spaces of juxtaposition’, places where incompatible concepts occupy the same space. DAT’s enclosures, where freedom is understood by some to be curtailed, are also spaces where persons with disabilities and their families discover new freedoms and dolphins are afforded the freedom of extended, although different, lives.

The heterotopia of DAT is also found on another scale, in the intimate space of haptic contact, of skin on skin, with a patient feeling the muscled presence of the ‘Other’ at liberty in a constructed place, displaced from its ‘wild’ origins, an ‘alien’ entity (Herzing, 2010; Reiss, 1990) that evidently thinks, that shares in the process of breathing, and has focused its agency on an individual human. It is this to which each DAT program seeks to enable access for their patients and families: a heterotopian space in which a transformative transgression occurs. This is a ‘placeless place’, independent of its location on Earth.

Liminality is also a condition of heterotopian space. As Foucault suggested, the mirror of heterotopian space reveals the world in new ways. DAT facilities are garden-like spaces where a kind of partially controlled nature and various agencies form a matrix in which shifts to new conditions are made possible. The heterotopian quality of the
spaces of DAT was highlighted in the encounter between the researcher and two dolphins. Having been introduced to the dolphins by a dolphin trainer who, as it turned out later, was testing the stated qualifications of the researcher, using his knowledge of a dolphin’s individual personality and capacities to see, by means of the dolphin, past a socially constructed representation of him as a student of animal geographies, the researcher found himself in a mirror-like world, where conditions exposed the normalised world. This experience in ‘affective heterotopian space’ revealed numerous dimensions of the contestations in DAT space. The bio-politics of DAT are a highly charged arena, one in which lives are at stake, both human and non-human. As a liminal heterotopian space it offers significant opportunities for insights into the human/non-human nexus of power relations as well as the ‘calculus of Joy’ that Haraway and Hearne describe (Haraway, 2008; Hearne, 1994).

This research has shown how heterotopian space, as in DAT spaces, can be understood as a global network and as a product of transgressions despite displacements. This research on DAT challenges the received notions within animal geographies that have understood the spaces to which animals have been moved and enclosed by human powers as only displacements. The view, within animal geographies, of constructed environments requiring “justice” (Wolch and Emel, 1998b, p. xix), as sites of “incarceration” (Watts, 2000, p. 292), as a “locus of pain” (Malamud, 1998) where there is a “moral presumption…in favour of [release from enclosure] with respect to all animals [including those] bred in captivity” (Jamieson, 2002, p. 183) is commonly held. This research opens these arguments to new evaluations, in which some spaces may become understood anew as heterotopian portals to new relatings, supportive of the views of Hearne (1995), Jones (2000), Hallman and Benbow (2006), Bostock (2008), Chrulew (2010), and others.

A Hybrid Geo-Ethics
The ethical component of the DAT discourse pervades its many dimensions. The socio-spatial effects of ethical theories and the practices, experiences, and resistances that these theories produce are at the heart of this research. In this section the various ethical positions that are embedded in DAT and the roles that they play are described. In doing so, a framework is developed which incorporates several ethical theories to
help clarify some of the contested views within the discourse of DAT. In particular, two major ethical theories, Lynn’s Geo-ethics (1999) and the feminist ethic of care (Donovan, 1996) are combined with the lesser-known theory of Biocentric-Anthropocentrism (Evans, 2005) to establish this framework.

The Ethics of Captivity and Enclosure
The first issue of concern relative to ethics in DAT is that of captivity. It dominates the oppositional discourse, and has been shown in the case study to be of significant concern within the community of practice of DAT.

A discussion about captivity, in the context of animal geographies, must acknowledge that the normalized concept of ‘captivity’ is inadequate when describing the range of experiences found in human-animal relations. This is made evident in the genealogy and case study of DAT in this research project. Accordingly, captivity is not an adequate description for the lives of some animals who have been born among humans or who cannot survive outside of human care. Definitions of ‘captive’ from many dictionaries make a distinction between the ‘captive’ state of a human (animal) and that of a non-human (animal). A captive human is said to have been ‘captured, taken prisoner’ while an animal who has been simply ‘confined’ is deemed to be captive (Webster's Third New International Dictionary of the English Language, Unabridged, 1966; New Oxford American Dictionary, 2005). This analysis of linguistic distinctions reveals a truth regime in which humans are not linked directly to their animality, and this distinction is asserted relative to the perceived differences in agency between humans and non-humans (Taylor and Carter, 2013). Dolphins living in built environments are accurately described as ‘confined’, but because a minority of dolphins in DAT facilities in the developed nations have been captured and most have been born within an enclosed environment (see below) they should not be considered as candidates for ‘release’. Many should, therefore, not be considered to be captives, as with many domesticated and semi-domesticated nonhuman animals. While they are confined to specific spaces these enclosures do not necessarily limit the dolphin’s ability to live ‘natural lives’, and in fact enable them to have lives, however different their lives may be from their conspecifics who are free-ranging. While a common-sense notion of the loss of freedom by enclosure may, or may not,
be applicable to the circumstances of all dolphins in built environments, it need not be understood as a loss of liberty in all of its dimensions.

It is undeniable that dolphins in some places have been, and continue to be, treated in ways that do them harm. Those who have created these situations exclude dolphins from the ‘moral community’. As Lynn describes it,

“A moral community is composed of all beings having moral standing, where standing means that one’s well-being can be considered for moral reasons… In effect, moral value marks a boundary between ethically considerable persons and inconsiderable things” (Lynn, 1998a, p. 285).

The consequence of dolphins being situated outside the moral community is the justification of exploitation, abuse, and harm. Geo-ethics, as mentioned elsewhere in this thesis, understands non-human animals to have both intrinsic and extrinsic value, meaning that they have ‘value’ both to themselves and to others. While Lynn’s geo-ethical theory states that humans can use a non-human entity for human purposes, it requires of those who accept its moral values the imperative to seek mutual benefit where possible (Lynn, 1998a, p. 291), such as is found in ‘mainstream’ DAT programs. DAT programs that are justifications for the capture and profit-motivated abuses of dolphins are challenged by activists from within the oppositional as well as the supportive discourse, where it is understood that in those cases dolphins have been excluded from the moral community (Smith, 2003, p. 245; interviews with therapists and trainers, CDTC, 2011). The boundary inscribed by exclusion of dolphins from the moral community is an unsettled one. Efforts have been made to formalize the inclusion of dolphins in the moral community with some academic analysis and subsequent public declarations (Cavalieri et al., 2010). This can be understood as part of a larger project within the academy to recognize the consciousness of non-human animals (Low et al., 2012), intended to expand moral considerations.

It is at this point in the spectrum of human-dolphin relations, where concern for the welfare of dolphins is situated, that supportive and oppositional discourses share common concerns. However, this juncture of ethically inspired aims is unstable, with each discourse drawing on different definitions of the wellbeing of dolphins, as revealed in chapters 6 and 7.
Concerns for the wellbeing of dolphins and of humans are frequently cited as reasons for ethical concerns about DAT, not always limited to the oppositional discourse. Strategies, goals, and kinds of ethical understandings, based on onto-epistemological paradigms of real difference are in use by the two poles of DAT’s discourse. The oppositional discourse adopts the ethics of animal rights and animal liberation in pursuit of justice in what is constructed as a profoundly unequal power relationship in most of its representations of Animal Assisted Therapy, the dolphin-human relationship, and/or DAT. While welfare is, inevitably, a basis for these concerns, the ethics of welfare itself, with its primary attention on the living conditions of individual animals, does not appear in the oppositional discourse. Evidence from the case study in this research indicates that the supportive discourse does represent DAT using the perspectives of the ethics of welfare. In this ethical conception individual dolphins and their histories as well as the individual lifeworlds of families and children are central to the considerations involved in mobilising and utilizing DAT.

While the oppositional discourse frequently refers to ethical positions regarding dolphins, the supportive discourse does not. By analysis of the supportive discourse it becomes clear, however, that the welfare of the dolphins is of significant concern. The case study of the CDTC provided some evidence of the ethical concerns of DAT providers. These generally follow a ‘welfare’ point of view that, because of the quality of care for the dolphins provided, and the ‘natural’ environment in which the dolphins live, they were satisfied that working at the CDTC did not violate their personal ethical standards. Families also expressed concerns for the welfare of dolphins in some cases, and were satisfied that the CDTC had achieved standards of care that overcame these concerns. As such, these statements provide a small sample of the views from within the supportive discourse of a general concern for welfare, but not a primary focus on the legal rights of dolphins.

A Hybrid Geo-ethics: a Framework for Understanding

Ethical concepts help to develop understandings of DAT if they embrace the relative, relational, and situated welfare needs of individual dolphins, as well as the relative, relational and situated needs of humans, some of whom are persons with disabilities.
A hybrid geo-ethics is called for, one that allows for both social and physical conditions to shape its responsiveness to ethical questions.

**Geo-Ethical Theory**

In seeking an ethical framework that supports understanding of DAT, this research acknowledges and draws upon the ethical theory of Lynn, which he termed Geo-ethics. Lynn describes Geo-ethics as a socio-spatial ethics that embraces geographic factors including environmental, ecological, human, and non-human needs as being of equal significance. Lynn’s Geo-ethics was developed to support “guidelines for action[s]…that provide mutual benefits for people, animals and nature” among other maxims (Lynn, 2007, p. 832).

However, Lynn denies social constructionism as a key underlying paradigm for his theory (see, for instance, Lynn, 2004, p. 259), where human beliefs and behaviors are understood to be constructed within and by social actors, contexts, and processes. Lynn acknowledges that “[s]ocial relationships and ecological processes are [both] generative sources of moral value” (1998, p. 284) and he makes the argument that “we generate moral values” (1998, p. 288). Despite this he rejects social constructionism on the basis of what he terms the “moral relativism that characterizes the social construction of nature thesis” (Lynn, 2010b, p. 398), emphasizing the notion that social constructions must, but do not, depend upon properties of the physical world. Instead, Lynn’s Geo-ethics is a normative ‘rights’ ethics seeking to establish principles and guidelines in a framework of justice in support of “the task of changing or concretizing our moral relations in the world” (Lynn, 1998a, p. 290). It is prescriptive and meant to improve ethical standards on the basis of ‘solidarity’, in which “[s]olidarity is a condition of relative unity binding members of a group into a fellowship of rights and responsibilities” (Lynn, 1998, p. 289). As Jones (2000) points out, a normative ethics makes invisible, by social constructions, the individual animal, focusing instead on populations:

“without the presence of the ethically visible body to ground the ethical practices…whatever ethical consideration there may be becomes generalized and dissipated via convention, markets, legislation, discourse and practice, often
generating a tendency of downgrading towards lowest common denominators” (Jones, 2000, p. 283).

An ethical theory that does not acknowledge the way individual animals are constructed in social ‘generalizations’ does not adequately support all aspects of a necessary ethical framework for understanding the ethical questions that surround dolphins in therapy programs. Therefore, this research begins with Lynn’s conceptualization of a geo-ethical theory as a socio-spatially sensitive one that embraces many factors while seeking mutual benefit across categories, and recognizes that other theories are needed to further develop these sensitivities in a framework of hybrid geo-ethics.

Biocentric-Anthropocentrism
A hybrid geo-ethics can be further developed by including the theory of Evans (2005), that of Biocentric-Anthropocentrism. This theory acknowledges that each living entity has its own proclivities, needs, and capacities, and in performing its own biological imperatives as an integral part of the overall ecosystem, its right to do so should not be infringed upon unnecessarily. Such an ethical standard posits that humans, just as much as all other animals, have axiomatic life requirements determined by biological systems that deserve to be met as part of the global ecosystem. It also embraces human intelligence and sensibilities such that individually situated experiences can appropriately guide ethical behavior. This ethical theory asserts that, since human ethics can only ever refer to human perceptions of needs, the peculiarities of human capacities will lead to varied interpretations. In other words, human requirements can, within carefully defined limits that take into consideration best possible outcomes for all concerned, trump the needs of other entities in certain circumstances – just as the needs of other animals can trump human needs in some circumstances. This theory does not place human requirements before those of others, but does acknowledge that humans will inevitably find their own needs to be compelling when forced to choose in difficult cases. It acknowledges that humans cannot in all cases take an ‘omniscient’ position in regard to ethical choices.

Biocentric-Anthropocentrism accepts, as Lynn does (2007), that a ‘practical ethics’ is a reasonable, effective response to the world and its contested spaces, and does not
deny the relational and socially constructed ethical standards upon which human ethical behavior is based. This research has shown that social construction is important to consider when interrogating philosophies and practices as found in the places and environments of DAT and the human-dolphin entanglements producing these contested spaces.

This theory, in effect, leans away from a ‘rights’ agenda, instead pursuing a bio-centric welfare agenda in which each individual entity is understood to be inherently entwined with others in co-constructed lives, and few decisions can be taken that do not choose the needs of one over another in a dynamic network of becoming. In other words, rights are inadequate to delineate the ethical boundaries between life forms and a kind of bio-centrically sensitive self-interest is understood by Evans to be the most acceptable ethical framework.

To understand how the contested spaces of DAT are constructed, a hybrid ethical framework can show the divergence of supportive and oppositional discourses. A hybrid geo-ethics, as developed here, must be tentative and dynamic, sensitive, suitable for addressing all scales of human-dolphin interaction. However, to round out the hybrid geo-ethical framework necessary for understanding DAT, one more key theory must be added, the feminist ‘ethic of care’ (Donovan, 1996).

An Ethic of Care

The feminist construction of ethics has been described as a

“lattice of similar themes – personal relationships, nurturance and caring, maternal experience, emotional responsiveness, attunement to particular persons and contexts, sensitivity to open-ended responsibilities… [t]his view does not imagine our moral understandings [as] congealed into a compact theoretical instrument of impersonal decision, [such as rights or value] but as deployed in shared processes of discovery, expression, interpretation, and adjustment between persons.” (Walker, 1995, p. 140, in Plumwood, 2002, p. 187).

Allowing for the meaning of ‘persons’ to include other animals, Walker’s description is understood by Plumwood to mean that there is no reason to think
“that these interspecies relationships are of necessity any less multidimensional, complex, rich and varied than our relationships with humans, or any more reducible to single parameters like rights” (Plumwood, 2002, p. 187).

An ethic of care, while concerned with the relief of suffering, seeking to improve well-being and sensitized to unjust power relations, is not an ethic requiring calculation of ‘moral value’ in the pursuit of a legally justified, rationalized framework of ‘solidarity’, as Lynn prescribes, with rights and responsibilities. It is a kind of hybrid ethics itself, an affect-sensitized ethic that derives its imperatives from the ‘world as it is’ and how this world and all of its actors affect, and are affected by, relations (Plumwood, 2002). In the philosophies and practices of DAT, relations with dolphins ‘as they are’, living in constructed environments among humans, are enlisted as colleagues to care for humans who, in turn, are in need of being accepted ‘as they are’, as persons with disabilities.

The ethic of care, when combined with Evan’s Biocentric-Anthropocentrism, and framed by Lynn’s Geo-ethics, is a recognition (not a construction) of an affect-sensitive standard of relations. These do not deny human continuity with other animals while they acknowledge those elements in human beings that define their uniqueness. These do not limit its considerations of the life requirements of individuals over species, or species over environments, but flatten these into one landscape of concerns, bypassing the problematic oppositions in animal rights and liberation theories.

A hybrid geo-ethical approach to DAT’s many quandaries with its relational, constructed, and contested spaces, enables its many actors to be placed into a context-sensitive framework of understanding. The paradoxically contested arguments over the welfare of dolphins in DAT, given that their lives can arguably be understood as dependent upon ‘working with’ humans, lies at the heart of its discourse.

Whether a dolphin’s life in built environments is acceptable under any circumstances is the first concern for those opposed to DAT’s uses of dolphins, followed by their living conditions, and the ‘requirements’ imposed upon them for specific behaviors. The supportive discourse, as evidenced in the discourse analysis and case study, tends
to accept dolphins who live among humans as animals with no other options. It maintains concerns that their lives be made as harm-free and healthy as possible while performing, in concert with humans, mutually beneficial activities. While concern for the health and wellbeing of these dolphin can be considered as concerns for the ‘means of production’ in a capitalist enterprise, this does not limit care, but instead increases these concerns. Significant resources are enlisted in building safe and suitable environments. DAT facilities seek to provide ‘best practice’ care, using sophisticated technologies for medical interventions as well as the provision of food, enriching environments, and companionship with humans and other dolphins.

From the perspective afforded by the hybrid ethical theory formulated here, various ethical concerns are apparent as the central basis for the contesting of the spaces of DAT. These ethical concerns are primarily about the general wellbeing and freedom of dolphins as representatives of a species for the oppositional discourse, and are about the wellbeing of individual persons with disabilities, of individual dolphins, and of communities for the supportive discourse. An ethic of care, combined with Biocentric-Anthropocentrism and the holistic thinking of Geo-ethics together provide a way for analyzing and understanding the human and dolphin needs found within the contested spaces of DAT. Consideration of needs that extend across species boundaries, and how they can be understood in the lives of individuals, leads to consideration of another concept, that of mutualism.

**Mutualism**

Mutualism describes the concept of benefits across boundaries that are approximately equal for both or all parties. A type of symbiotic relationship, “mutualism [is] the elaboration of complex webs of interdependence between different (often very different) species” (Weston, 2009a, p. 174). It is co-productive, supportive of partners in life processes of becoming. Kropotkin’s notions of mutual aid and their further development in biological and political understandings inform the emerging theme of mutualism in the contact zones of DAT, spaces in which two different species experience mutually reinforcing benefit.
This chapter concludes with the concept of mutualism because it describes the various ways in which humans and dolphins work together to achieve benefits for both species and serves as a concept that brings together the research concerns of this project. This emergent concept is understood here as an answer to the overall research questions posed by this research. These concern socio-spatial constructions by which the normalized boundaries between species that delineate how life requirements are met can be re-envisioned. It describes entangled agencies that produce spaces of mutual benefit, thereby resituating humans in relation to other animals. Kropotkin’s insight into the ways that animals cooperate to achieve a variety of aims that, in effect, create mutually beneficial outcomes (1902) is a productive way to understand the supportive discourse of DAT.

In contrast, the worldview that Kropotkin worked against, a world in which struggle and a lack of cooperation prevails in a competitive contest of divergent interests, with inevitable domination of one kind over another (Darwin, 1871; Huxley, 1888), seems an equally productive way to understand the worldview of those who oppose DAT. The competitive worldview perceives threats to the wellbeing of dolphins in an enclosed environment in which dominance is the operative paradigm, where humans are the only actors in a world without non-human agency and ‘power over’ is the norm. It is not considerate of the varied, situated realities of the lives of all dolphins living among humans. Some dolphins have been recently captured for dolphinariums in Asia (Psihoyos, 2009) using inhumane techniques, and these are frequently used as a universalized representation of the plight of all dolphins who reside in built environments. However, the dolphins overlooked by these views are those without the option of release, many of whom are engaged in the practices of DAT. In this competitive worldview the affective agency, as well as the intentional choices of non-human animals, is erased or diminished in importance, instead understanding human preference to be the most effective power in a world of inequalities. This worldview denies the effect of agency as manifest in adaptability and in mutual activities in which both species (e.g., in DAT, working dog teams, some human-horse relations) engage in meaningful activities that promote wellbeing, each species gaining in the activity.
The supportive discourse understands that the liminal dolphins of DAT are not simply describable as gaining reprieves from death or as ‘captives’, but are also colleagues producing spaces, performing actions and engaging in practices that enrich their own lives. As argued in this research, they act ‘at liberty’, freely exercising their choices, albeit within constructed enclosures, involved in routines of interaction with humans as well as performing creative, unrehearsed, and spontaneous behaviors, often to the benefit of their human therapist ‘colleagues’, and often as effective co-constructers of moments of transformative meaning for humans with disabilities.

In DAT, dolphins are presented with frequent temporary challenges in a context of socially enriching, relatively safe interactions with humans, and are acknowledged for their achievements by further interactions, attentions, and food rewards. In DAT then, mutualism is the socio-spatial core of the supportive discourse.

This concept of mutualism, as a lens through which to analyse and understand human-animal relations, has not been previously described in animal geographies. It suggests the possibility of new understandings across many of the contested spaces studied in its discourses.

For example, Wolch’s urban geographies of human-animal relating (1998; 2002) are further supported by this concept of mutualism: where urban spaces are being designed, not only should non-human lives be understood as being affected by human environments, but designs should reflect the actual mutual benefits to be gained by inter-related lives. Wolch’s example of water quality in urban watercourses being made answerable to the needs of frogs (2002, p. 733) as a reflection of an improved ‘moral compass of mutuality’ does not go far enough in describing the mutualism of how humans gain, not only by improved water quality, but also by the affective bodily presence of frogs with their sounds, movements, bioactivities and liveliness, while frogs regain lost habitat, food sources and a protected environment.

The call to develop and explore modes of interaction and social spaces by Chrulew (2010) where benefits are found ‘for both sides’, is addressed by employing mutualism as a conceptual lens. Mutualism offers a new conceptual framework for animal geographers exploring whether a constructed environment fosters
inclusiveness and overcomes the ‘moral presumption’ against animal enclosure identified by Jamieson (2002b).

Mutualism, as a concept for animal geographies, departs from the Cartesian legacy in which only human benefit is of consequence, instead acknowledging non-human animals as having ethically significant status in efforts to understand how human-animal relations are theorized, practiced, experienced, and resisted.

Chapter Summary
The conclusions reached by this research offer several contributions to animal geographies. This thesis argues that a hybrid proxemics, based on physical proximities and proximal and distal kinds of knowledge, produces significant understandings of the heterotopian spaces of DAT. The contested spaces of DAT, produced by perceived transgressions by and displacements of both humans and dolphins, are best understood by use of a hybrid geo-ethical framework. Further, it argues that mutualism is a key socio-spatial geographic theory for understanding many kinds of human/non-human interaction.
Chapter Nine: Conclusions

This final chapter summarises this research and proposes possible future research aimed at extending its understandings.

This research posed the question: How are the contested spaces of Dolphin-Assisted Therapy theorized, practiced, experienced, and resisted? Sub-questions sought to clarify the variety of definitions used in DAT and the key arguments used in support and opposition to it. The role of the dolphin was used as a lens through which to analyse opposing discursive constructions and the effects of DAT on humans within and beyond its community of practice were also analysed.

Understandings of the Contested Spaces of Dolphin-Assisted Therapy

The field of DAT is a contested space, but one that has provided benefits to families and patients with disabilities for decades. It has been contested primarily because of ethical concerns about the captivity of dolphins. This has been supported by enlisting concern for patients and their families, represented as being vulnerable to abuse by an unethical ‘industry’ in some of the oppositional discourse. This research has sought to understand the socio-spatial basis for these concerns.

This research on DAT has sought to contribute new understandings to animal geographies about hybrid geographies, as well as zoos, aquariums and notions about captivity and proximity between humans and other animals.

Using abductive reasoning to move ‘toward’ meaning, it sought likely understandings drawn from observation of complex factors and processes. Central to the opposition to DAT are challenges to its ethics. Whether dolphins can be understood to be living authentic, free, and healthy lives in human-built enclosures is challenged by most, if not all, DAT oppositional arguments. While some arguments seem to be directed at
opposition to DAT-as-therapy, these are part of campaigns to erase the close proximities of DAT, intending to re-establish greater and greater distances between humans and dolphins, represented as iconic representatives of ‘nature’.

In reviewing how the findings in this research aligned with that of previous research in animal geographies, the key points of difference that emerged were its engagement with a ‘hybrid’ proxemics, the role of DAT in positive transgressions and displacements in the production of spaces, a hybrid conception of geo-ethics, and mutualism. These offer four key frameworks for understanding the complexities of DAT. In particular, a hybrid form of proxemics that includes physical and affective proximities as well as the regimes of knowledge that various proximities afford enables a relational understanding of DAT to emerge. By holding an open view of how displacements and transgressions produced DAT’s many spaces and varied meanings, they became understood to produce socio-spatial changes that were not necessarily negative, as they had been described in the oppositional literature. Geo-ethics, while an important ethical theory, did not enable a full understanding of DAT. By inclusion of the feminist Ethic of Care, and Evans’ Biocentric-Anthropocentrism, a hybrid form of Geo-Ethics afforded a more responsive understanding of its complexities. Finally, the concept of mutualism is a key theory for understanding the contested spaces of DAT because it highlights and challenges the received notions of dominance and anthropocentric objectification found in its oppositional arguments. The concept of mutualism, as a framework within which to investigate human-animal relations, affords researchers the opportunity to overcome boundaries established by ideologies of human exceptionalism and limited notions of animality. As a socio-spatial understanding of the varied ways in which humans and other animals benefit each other in environments in which a hybrid geo-ethics of relationality is practiced, the concept of mutualism offers to animal geographies new understandings of instrumental and affective relations.

The concept of liminality, which is the condition of becoming that is between the apparent stabilities of normalised existence, is significant in this research. The dolphins of DAT are liminal animals. Habituated to human interaction, living in built environments constructed and managed by humans, yet retaining individuality and agency, they are in a socio-spatial status that remains to be defined. No longer ‘free-
ranging and wild’ and not domesticated, their status is not unlike that of cats, in that they live among us yet are both familiar and aloof. It is, in part, their retention and expression of individual agency that appeals to humans who sustain working relations with them, as this research has shown.

The spaces in which DAT occurs are liminal spaces, transit zones between sections of individual lives, spaces in which change is sought and occurs. It occurs at the border between water and air, where geographies have rarely been described. To be liminal is to be in a dynamic fluidity with outcomes unpredictable. The liminal dolphin, expressing itself as an individual, choosing its actions and interactions to the degree possible in the constructed spaces of DAT’s contact zones, embodies liberty, the free expression of a wide range of its abilities. No longer constrained to the daily search for food and safety, the dolphins of DAT are restrained inside boundaries of human making, but are also released to explore new relationships, new social realities. In these same spaces humans experience authentic encounters with a significant other, transforming former concepts of self, other and other limits. Persons with disabilities experience different conditions, in and on the border of water, supported by caring humans, making contact with a very different living presence. For many of these persons, the experiences stimulate neurological responses that offer change.

Understanding the geographies of the liminal dolphins of DAT has been shown to be significant as part of the growing understandings taking place in Animal Studies. New ways of understanding human-animal relations in terms of the mutualisms that occur across the spectrum of these relationships offers a counterbalance to the abuses that have characterised much of human-animal relations. As such, the geographies of the liminal dolphin offer a conceptual space in which the agency of dolphins supports human transformation to more inclusive understandings.

Future Research on DAT
The complexities of DAT in its many forms, as revealed here, call for research to extend beyond socio-spatial analysis in some instances. A multi-disciplinary team research project, using phenomenology and ethnography, as part of anthropological, sociological, and psychological research, supported by various biological sciences, as
well as expertise in physics (especially bio-acoustics), would be required to more fully address its diverse theories and practices. This research offers a foundation for such research.

This research suggests the importance of, and lack of attention to, the role of dolphin trainers in DAT. A research project specifically focused on the roles, experiences, and insights of dolphin trainers could offer an important contribution to the discourse of DAT and to animal geographies, taking the insights of Hearne (1987, 1995) and Haraway (2003, 2008) into new spaces.

A global survey of DAT facilities and programs would also be an important contribution to the understanding of DAT and could make a significant contribution to academic understandings as well as the public discourse. These findings could be disseminated to families seeking DAT, assisting them by clarifying its definitions, describing its history, controversies, and the variety of programs available worldwide.

A multi-disciplinary study of the ethical aspects of DAT would also further its understanding. An in-depth geo-philosophical research project, detailing the historical development of ethical theories, utilitarianism, animal liberation and animal rights concepts, and the status of these ethical constructs in the early 21st Century as they have been applied to DAT would also be an important contribution to animal geographies and the understanding of DAT.

Animal geographies as a whole could benefit by research projects that analyse the role of mutualism in human-animal relations. Critical Animal Studies have been formally established to explore the ways that humans relate to animals in unequal power relations of dominance and violence, in an overall ‘animal rights/liberation’ framework, seeking justice. However, no clearly defined ‘school’ of animal geographies has developed that seeks to develop understandings of mutualistic interspecies relations. Studies exist of these types, but no journal or conferences presently exist to foster the socio-spatial understanding of mutually beneficial relations between humans and other animals.
In Conclusion

This research has sought to develop understandings by analysis of the geographies of Dolphin-Assisted Therapy and in doing so to bridge some gaps in the study of human-animal relations. DAT sits at a nexus of relations as a contested form of human-animal relations, where a broad range of conceptions about the proximities of human and dolphin interactions produce divergent realities. Extending from the intimate spaces where a child embraces a dolphin, supported by a team of adults, to the abstract spaces of legislative frameworks, ethical debates, and social campaigns, DAT is a node in networks produced by many agencies. The analysis in this research has established some key understandings for future research. More understandings can and should be sought in this area of global significance. These will aid the many agents involved in the contested, and liminal, spaces of DAT. The understandings developed by this research suggest new areas of research well beyond Dolphin-Assisted Therapy’s community of practice, extending into other areas of human-animal relations.
Endnotes

1 The general term ‘dolphin’ is used in this research to refer to the various species of cetacean in human-dolphin interactions. The majority of dolphins with whom humans interact for therapeutic purposes are Bottlenose dolphins, either *Tursiops truncatus* or *Tursiops aduncus* (Couquiaud, 2005; Stewart, 2006).

2 Sapience has been defined as “the ability of an organism or entity to act with appropriate judgment, a mental faculty which is a component of intelligence” (see Perlovsky, 2007). For the purposes of the research, I adopt this definition as it helps to distinguish the unique aspects of dolphin cognition and intelligence as agents in therapy programs.

3 To avoid over-complicating the narrative of this portion of the thesis, the commonly used terms ‘Dolphin-Assisted Therapy’, and DAT will be used instead of ‘dolphin-assisted therapies’, which is more accurate (a typology developed in chapter 5 will help make clear the variations that make a single term for this category of practices problematic).

4 While I prefer to use the term ‘differently-abled’, many persons who are so ‘abled’ and many who study them (Harris, 2001; Griffin et al., 2007), use the term ‘disabled’. This term seems to refer to a state in which something has been made non-functional, with some quality removed or changed. However, it has been identified as referring to socially-constructed obstacles to performance, not personal inability. Therefore, the terms ‘disabled’ and ‘persons with disabilities’ will be used to align with normalized terminology. In this research, ‘disabled’ refers to persons with disabilities with a wide variety of conditions, including (but not limited to) those with genetic, developmental, pathogenic, traumatic, and environmental causes.
These were:


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6 To be liminal is to be in transition, to be undergoing a transformative experience. As Turner puts it, liminal entities “are betwixt and between the positions assigned… by law, custom, convention” (2008, p. 95). Turner describes the liminal ‘space’ as “potentially and in principle a free and experimental region of culture, a region where not only new elements but also new combinatory rules may be introduced” (1974, p. 61). Turner’s description of the liminal state, applied to dolphins and humans being together, is an apt one: “In the liminal phases and states…work and play are hardly distinguishable” (1974, p. 66).

7 Definitions for ‘captive’, in the *New Oxford American Dictionary* (2005), the *Random House Dictionary of the English Language* (1967), and *Websters Third New International Dictionary (unabridged)* (1966) reveal the dualisms embedded in this word, describing ‘a person who has been taken prisoner or an animal that has been
confined’, making captivity and confinement cognate. However, only ‘captive’ is drawn from the Latin capere and captivus, that is, ‘seize, take’. ‘Confine’ is drawn from the Latin, fine ‘with an end, or border’.

These definitions separate human and non-human experience along lines of ‘being taken’ versus ‘being enclosed’, or the effect upon a subject versus the effect upon an object. This reiterates the dualistic separation of humans as subjects and animals as objects. Because humans are animals, this is problematic. A dolphin, rescued from a stranding event, or born into a built environment, while confined, has not been ‘taken’, just as humans who are, for example, ‘confined to bed’ are not captive. Being confined is not necessarily a negative imposition upon personal freedom. Pets, confined so as to protect them, are not captive, instead their freedom to live is being protected and supported. The ambiguity in the word makes it unsuitable for definitive uses.

8 “In the example of the zoo, it seems reasonable to argue that it is a most transparent institutional exploitation of the hierarchizing, rationalist oppositions of reason/nature, mind/body, human/animal” (Anderson, 1995, pp. 277-278)

9 The RSPCA UK states on its website that “We're working to improve the welfare of wildlife and ensure that human activity does not cause unnecessary suffering”. See <http://www.rspca.org.uk/in-action/whatwedo/rescue/wildlife/-/article/EM_wildlife_rescues>, (viewed 5/11/11).


11 See, for example Urbanik (2012), who includes a twenty-five page chapter on ‘working animals’, with less than one page devoted to a broad description of therapy animals. Extensive searching in online databases and journals has not found any studies of the geographies of animal assisted therapies.
While the author recognizes a difference between morals (a personal code of conduct) and ethics (a systematic philosophical position governing human behavior) (Maslow, 1964), Zamir makes no distinction between them in this article.

Cresswell (2009) also lists two other ‘worldviews’: ‘Pragmatism’ and the ‘Advocacy and Participatory’ worldview, which have not been as prevalent, having developed in the 1980s and 1990s and deployed in a limited range of social research projects. He uses ‘worldview’, which he states is synonymous with ‘paradigm’ (2009, p. 6), to describe one’s “basic set of beliefs that guide actions” (Guba, 1990, p. 17).

Some of the other geographies that include the body as a center of research: Queer; Disabilities; Fashion; Food; Leisure; and Soundscape.

Dependence upon cognition is linked to competency in language in strongly humanist ideations of constructivism (see for instance Jones, 2009, vol. 7, p. 309; but see Mistry, 2009, vol. 5, p. 371). For this research, with its openness to the experiential realities of both non-human animals and humans with, in some cases, no language competency and unknown cognitive skills, a less restricted theory has been sought as an addition to, or amendment of, a constructivist epistemology.

“A form of reasoning that takes accepted knowledge and infers the ‘best available’ explanations for what is observed. Whereas deduction formally infers the consequences of a cause-and-effect relationship (if a, then b), and induction infers a conclusion from a number of observations (of the same patterns, for example), abductive reasoning infers relationships from observations rather than asserting them. It thus presents a ‘provisional’ account for what has been observed (for why a is related to b), either inviting further empirical investigation that might sustain the ‘explanation’ or encouraging deductive work that might put the putative causal chain on a firmer footing” (Johnston, R, Abduction, in Gregory et al., 2009).

The title of this project was changed from “Of babies and bathwater: the contested spaces of Dolphin-Assisted Therapy” to its current title, as detailed in Appendix A.
As discussed by Poland (2001), transcription is a process of interpretation in all cases, and is a record of an inter-subjective process by which meaning is sought. As a participant in the production of the interview, the researcher has both a responsibility to closely engage with the transcription process, and is best situated to edit those transcriptions to limit the focus of the data to the actual topic of the research. This requires a high degree of reflexive awareness by the researcher, part of the commitment to witnessing, which I take to be a heuristic, hermeneutical process.

The Dolphin Project was founded by Ric O’Feldman, later known as Ric O’Barry. It was originally intended to provide a place where research could be done on, and with, dolphins. O’Feldman’s stated intentions were to “…have lots of dolphins. We’ll start with a pair of them. Then we’ll raise our own. We’ll buy some, let them breed, do research.” After the first dolphin acquired was released, when the project could not afford to feed her, another pair was sought and purchased by O’Feldman. He said, “I saw, not a pair of dolphins, but the beginnings of a dynasty.” Funding problems led to these dolphins also being released (O’Barry and Coulborn, 1989, pp. 233-234). The Dolphin Project was later transformed and continues (2013) as a prominent activist organization dedicated to ‘freeing all dolphins’. As a global organisation, the Dolphin Project plays a significant role in opposition to DAT with influential films [an Oscar-winning documentary “The Cove” (Psihoyos, 2009)] a television series (O’Barry, 2010) and internet campaigns (O’Barry, 2009, 2010).

This detail was provided by Nathanson in an interview conducted for this research, on June 21, 2011:

“She came to me and said, "What do you think about this? Should I do it, should I? Does it have any value?" I said, "Anything you can do to help the kids, I support. I don't know what the results are going to be, what you want to do, but anything… I'm in favor of anything that will help children.” I think of children in need. As far as I know she did not know things about autistic kids, period. She didn't know anything. But I was fine with that.”

Nathanson said, in addition,

“…Betsy was, I don't know what she was doing... there was no scientific design, nothing like that... There was no evidence as far as... yes she would...
throw autistic kids in the water and that's nice but so what does that mean?
There was no theory behind it. I said, “Betsy, this is not research, this is all nonsense.”

21 Nathanson named his version of DAT ‘Dolphin Human Therapy’ to distinguish it from other versions.


23 URLs:
• Lithuanian Marine Museum <www.juru.muziejus.lt/inside.php?id=terapija>
• Netherlands Antilles (Curacao): <www.cdtc.an>
• Japan: <http://www.jdat.org/activity/dat.php>
• Turkey: <http://dolphin-therapy.org/en/dolphin-therapy/dolphin-assisted-therapy-concept/new-method>
• Mexico: <http://www.vallarta-adventures.com/tours/special-needs-program>
• Indonesia: <www.balidolphintherapy.com>

24 There was no mention of TAD on the Human Dolphin Therapy Grand Cayman website, viewed 24/06/2010 <http://www.dhtgc.com>.

25 The Delta Society website states: “AAT is a goal-directed intervention in which an animal that meets specific criteria is an integral part of the treatment process” (<http://deltasociety.org/Page.aspx?pid=320>, viewed on 5/11/11, emphasis added). Elsewhere on the site it states that therapy animals “are usually the personal pets of their handlers” (<http://deltasociety.org/Page.aspx?pid=303>, viewed 5/11/11).

Although DAT studies are among listed resource documents on the Delta Society website, no DAT programs are listed and the core text upon which their programs are designed (DeltaSociety, 2010) makes no mention of dolphins in the list of suitable therapy animals. In personal communication with a representative of the Delta Society by the author, in answer to a query about whether dolphins are included by the Delta Society among animals acceptable for therapy, it was stated
“Delta Society does not register wild animals in our therapy animal program, Pet Partners, but we would include therapists who incorporate Dolphins or other wild animals into their work in our Directory of professionals” (pers. com. to the researcher, from Delta Society ‘resource support’, 12/8/10).

In other words, dolphins are not included under the programs of the Delta Society on the basis of their ‘wildness’, but human therapists who work with them may be. The response to a similar query to IAHAIO received the reply: “Dolphins are not regarded as companion animals” (pers. com. to the researcher, from the Secretary of IAHAIO, 18/4/10).

Domestication is a varied notion. It is constructed differently for each species, and resists being a settled ‘fact’. For some researchers, dolphins are among the most easily ‘domesticated’ animals, adapting readily to living in built environments. For others, dolphins have not been domesticated, and perhaps cannot be, as some individuals resist these changes and are understood to have a high degree of agency. Whether dolphins living in built environments are best described as domesticated or not, their record in DAT and SWTD programs since the 1980s would seem to support their suitability for inclusion in the category of AAT on the grounds of safety.

Pre-session analysis of the patient’s condition is a standard practice among DAT providers before admission into their programs. Usually this is based on review of reports from the patient’s primary home therapist, provided either by the family or having been sent directly from the primary therapist.

The issue of dolphin capture is a key concern in the DAT discourse, but will not be discussed at this point in this thesis. This topic is taken up in chapter 6.
Although this definition acknowledges that DAT is not a single form of therapeutic practice, and is actually a field of practices, it is deemed by this author to be impractical, from this point onward, to call it Dolphin-Assisted Therapies. Instead, it will be called DAT, except where narrative style demands otherwise, and may use the term ‘therapies’ in some circumstances.

From this point forward the term DAT will refer only to those types of DAT identified as being part of the mainstream model of DAT unless stated otherwise.

An extensive search using internet search engines and a ‘snowball’ technique among sources the author has among DAT program managers and therapists has made this clear. The changes in relative economic development in various regions around the world seem to have a direct relationship to entrepreneurial efforts to establish dolphin encounter facilities. As private financial resources increase in an expanding middle-class, more entertainment, educational, and environmental tourist facilities are built. A small percentage of the facilities with dolphins seem to offer DAT programs, with Asian facilities showing the greatest increase (Zhang, et al., 2012). A survey of DAT programs during the course of this research (2010-2013) revealed a changing ‘landscape’, with programs opening and closing and no stable estimate of them was possible. An additional challenge to determining the number and nature and longevity of DAT programs was the problem of language differences, with search terms not always successful in English. A more extensive discussion of this survey and its findings was deemed to be beyond the scope of this thesis. The author intends to develop this ‘survey’ and publish it in a later research project (see chapter 9). In relation to whether most DAT programs take place in controlled environments, all indications from available evidence are that this is an accurate statement.

According to Nathanson in an interview for this research (2011), the Dolphin Academy wanted to increase the length of time under which the DHT program would be operated under ‘provisional’ status, thus increasing the exposure to risk, and lowering financial feasibility for the DHT. This attempted last-minute change to the
agreement that had been under negotiation for some months raised further questions for Nathanson, who chose to terminate the negotiations (Nathanson interview, 2011).

38 Dolphin Aid is one of several organizations that support DAT families. Delphus, in Belgium, an environmental organization formerly opposed to dolphin captivity, has become an active supporter of families whose DAT sessions are at Mondonmar, a dolphinarium/entertainment facility in Spain. The Mondonmar Aqualandia Foundation uses donations from Delphus and other organisations to entirely fund a free DAT program at Mondonmar that has been operating since 2001, with over 2,200 children given sessions. For background, see http://www.dauphinlibre.be/november.htm, and http://www.euroforum.be/Delphus/NL-2013/een.html.

Make-A-Wish, Starlight, Dream Makers, Children’s Wish of Canada, and other international organisations also support families who travel to DAT facilities for special experiences for disabled children, and for those whose final wish is for a dolphin encounter.

39 It should be noted that not all patients at CDTC are supported by Dolphin Aid. Some have come initially with Dolphin Aid’s logistical, and/or financial support, then have chosen to book their own airfares and hotel. Others come to CDTC without any connection to Dolphin Aid.

40 Hall’s measurements of these spatial distances are broadly accepted across sociology and psychology, and are:

- Intimate distance (for touching or whispering):
  less than 15cm to 45cm (contact to 18 inches)
- Personal distance (for interactions between friends):
  45cm to 120cm (18 inches to 4 feet)
- Social distance (for interactions with acquaintances)
  1.2m to 3.6m (4ft to 12ft)
- Public distance (for public speaking and observation)
  3.6m to 7.5m or more (12ft to 25ft or more)
The main oppositional arguments toward human interaction with dolphins, especially in the form of DAT, are:

1. Risk of injury to patients
2. Risk of disease transmission to patients
3. Risks of injury or disease transmission to individual dolphins
4. Risks to wild dolphin populations
5. Lack of scientific support for DAT
6. Lack of credentials among therapists
7. Lack of legal and governmental oversight
8. Exploitation of parents
9. High cost
10. The ethics of captivity

(complied from O’Barry and Coulbourn, 2000; Smith, 2003; Marino and Lilienfeld, 2006, 2007a; WDCS, 2007; Gregg and Marino, 2008; Rose et al., 2009; Stewart and Marino, 2009; Ellison, 2010; Weisleder, 2010; Herzog, 2011b).

These arguments, while significant, are not all well supported by scientific research. Some are produced by affect, the subtle power of intense emotions produced by representation. A more thorough analysis of this list is beyond the scope of this thesis. It will, however, be the basis of future research by the author.

I acknowledge that Suchet’s work is focused on issues of indigeneity, and is not primarily concerned with non-humans. No implications of similarity between non-human animals and indigenous persons are made here, either explicit or implicit. However, her concept of ‘situated engagement’ is found to be entirely applicable here.
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**Appendices**

**Appendix A: Change of Name for Project**

(Note: this is included to explain difference between the project name in these appendices and the revised name)

From: Ms Deb McDonald [dmcdonald@usc.edu.au]
Sent: Monday, 18 June 2012 3:05 PM
To: Clark Taylor
Cc: Dr Jennifer Carter; Ms Kelisha Lyndon
Subject: Change to research topic approved

Dear Scott,

I am pleased to advise that your application to change research topic has been approved and processed.

Your new topic is as follows:

Geographies of the Liminal Dolphin: Toward an Understanding of the
Contested Spaces of Dolphin-Assisted Therapy.

Please let me know if you have any questions.

We wish you continued success with your research.

Kind regards,
Deb McDonald
Research Training Administrator

Appendix B: Permission to reproduce images

From: Mike Schoon CDTC <mike@curacaodolphintherapy.com>
Date: 24 October 2013 6:03:39 AM AEST
To: "dolphin@dolphintale.com" <dolphin@dolphintale.com>
Cc: Marco Kuerschner <marco@curacaodolphintherapy.com>
Subject: reproduction of pictures for doctoral thesis

To whom it may concern:

The Curacao Dolphin Therapy Center gives C Scott Taylor permission to reproduce, in his doctoral thesis, an image of the CDTC taken from an airplane that we provided to him for this purpose.

The CDTC also gives C Scott Taylor permission to use, in his doctoral thesis, a screen capture image from the CDTC official website depicting a therapy dolphin and including the description used on the website. The image is taken from this page:http://www.curacaodolphintherapy.com/en/the-team/the-dolphins

Sincerely,

Mike Schoon
Managing Director CDTC
Appendix C: Recruitment Letters and Poster

(Note: dates for field research were changed to June 20th-July 19th.)

1. Letter of invitation for families to participate

An invitation to participate in important research on Dolphin-Assisted Therapy

Mr. Scott Taylor, a graduate student at the University of the Sunshine Coast, Australia, will be at Curacao Dolphin Therapy and Research Centre between April 22 and April 30 to conduct research on the experiences of families who have chosen to do Dolphin-Assisted Therapy.

You are invited to schedule an informal introduction to Mr. Taylor, who will ask you a few questions about your DAT experiences. If you and he are comfortable speaking together, arrangements will be made to meet for a
longer interview. Your interview will be recorded. Your name or other identifying details will not be included in the final research project, to protect your privacy.

You will be provided with written information about the research project, and will be asked to sign a consent form allowing Mr. Taylor to use information from your interview in his research.

Interviews will be face to face, will be done either with individuals, or as a small family group. You will be asked to provide general information about your gender, age, occupation, and community of residence. The main questions will be about your perceptions of the experience of choosing DAT as a therapeutic intervention in your life, how these choices were made, and how they have affected your life.

Participants may be asked to do several interviews. You may withdraw from the interview at any time.

If you are willing to participate in this important research project, please contact Scott Taylor at dolphin@dolphintale.com, leave a message at the front desk for him, or contact him personally at the Dolphin Therapy Centre during his visit.
You are invited to share your insights into the effect of DAT on your personal and professional life.

Scott Taylor, a graduate student working on his PhD research project, is researching the effects of DAT on the lives of families, professionals engaged in delivering DAT (therapists, trainers, and assistants), and management personnel.

One-on-one interviews will be conducted at a time and place suitable for this, away from the Curacao Dolphin Therapy & Research Centre, so as to ensure your anonymity if you desire. No personally identifying information will be in the final research product, a PhD thesis.

You will be provided with information about the research project and your rights, and will be asked to sign a consent form. All interviews will be audio recorded. Participants may be asked to do several interviews. If you would prefer to be interviewed via email, this can be arranged.

If you would like to contribute to this important research, please make contact with Scott Taylor directly, at dolphin@dolphintale.com, or by contacting him during his visit. He will be at the CDTC from April 22 through April 30.
3. Letter to Curacao Dolphin Therapy Center management

From: Scott Taylor [mailto:dolphin@dolphintale.com]
Sent: Friday, July 30, 2010 1:46 AM
To: XXX
Subject: Request to do research at CDTC

Hello:
I am a mature-age (61 yrs old) PhD candidate at the University of the Sunshine Coast, in Queensland, Australia. (www.usc.edu.au)

My research project is in the field of Human Geography, and the title of my thesis is: Of Babies and Bathwater: The Contested Spaces of Dolphin-Assisted Therapy.

The goal of my research project is to investigate the opportunities and challenges experienced by professionals and patients involved in dolphin-assisted therapy.

I do not intend to do any analysis of whether DAT works or how it works.

I am interested in interviewing some of the people who work at your facility, especially therapists, trainers, and managers.

Would you be willing to provide access to your staff for interviews, and to contact, or place a notice at your facility, and/or on your website, asking patient families to be interviewed? I could personally travel to your facility to conduct the interviews at your convenience.

I will provide Ethics clearance from the University of the Sunshine Coast that ensures that my research does not involve any unethical questions. This will also ensure that all participants will be fully informed of their right to remove themselves from the research, that confidentiality will be maintained at all times in regard to any identifying data acquired from them, and that any personally identifying data will be destroyed at the end of the research period.

Please advise me as to your decision to assist with my research and, if my request is
accepted, the best way to proceed.

I anticipate being able to travel to your facility between the months of June and August, 2011.

Sincerely,
Clark (Scott) Taylor
BSocSc (Hon)
PhD candidate
University of the Sunshine Coast, Queensland
   Australia
Appendix D: Questions for Interviews

1. Questions for families

1. What is the origin of your interest in DAT? (where did you hear about it?)
2. How was the choice made to come to this DAT facility?
3. How has your community responded to this choice?
4. Have you encountered any information that concerned you about DAT or caused you to reconsider DAT?
5. Have you experienced DAT before? How has your community accepted your choice to do it?
6. Would you recommend DAT to other families whose situation is similar to your own?
7. What was the most difficult aspect of your decision to utilise DAT?
8. What are your feelings about the role of the dolphins in DAT?

2. Questions for therapists and trainers

1. What are your perceptions regarding the importance of your work in DAT?
2. What are the difficulties involved in the delivery of DAT?
3. What are your perceptions of the role of dolphins in DAT?
4. What are the effects of activism in relation to DAT?
5. Have you experienced effects in your personal life as a result of being involved in DAT?
6. How has DAT affected your professional career?

3. Questions for Management

1. How is DAT perceived by the local community?
2. How do you feel is DAT is perceived by the larger community (national, regional, global)?
3. How does the perception of DAT affect your ability to manage or provide DAT?

4. How does activism affect your business/organisation's ability to deliver DAT?

5. Describe your feelings and thoughts about the dolphins and their lives among humans.
Appendix E: Demographic Data of Interviewees

Note: names have been changed to provide anonymity

### Families of DAT patients

<table>
<thead>
<tr>
<th>Family Name</th>
<th>Ages (M/F)</th>
<th>Occupations (M/F)</th>
<th>Nationality</th>
<th>Interview (minutes)</th>
<th>Location</th>
</tr>
</thead>
<tbody>
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<td>Felix</td>
<td>39/39</td>
<td>Bank Clerk/Homemaker</td>
<td>Germany</td>
<td>43:11</td>
<td>CDTC therapy room</td>
</tr>
<tr>
<td>Kruger</td>
<td>37/34</td>
<td>Taxi Driver/Auto Mechanic</td>
<td>Germany</td>
<td>49:47</td>
<td>CDTC Office</td>
</tr>
<tr>
<td>Beate</td>
<td>38/39</td>
<td>Sales assistant/Banker</td>
<td>Holland</td>
<td>51:40</td>
<td>CDTC therapy room</td>
</tr>
<tr>
<td>Karl</td>
<td>35/32</td>
<td>TV Presenter-Actress/Policeman</td>
<td>Holland</td>
<td>44:59</td>
<td>CDTC therapy room</td>
</tr>
<tr>
<td>Unzer</td>
<td>41/38</td>
<td>Train driver/Homemaker</td>
<td>Germany</td>
<td>44:57</td>
<td>CDTC Office</td>
</tr>
<tr>
<td>Denke</td>
<td>45/40</td>
<td>Teacher/Electrician</td>
<td>Germany</td>
<td>35:53</td>
<td>CDTC therapy room</td>
</tr>
<tr>
<td>Schultz</td>
<td>51/52</td>
<td>Electrician/Homemaker</td>
<td>Germany</td>
<td>42:29</td>
<td>Nearby Clinic</td>
</tr>
<tr>
<td>Gearhardt</td>
<td>38/41</td>
<td>Self-employed/Shopkeeper</td>
<td>Holland</td>
<td>28:41</td>
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</tr>
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<td>43/40</td>
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<td>1:06:14</td>
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<td>Vanderburg</td>
<td>46/48</td>
<td>IT consultant/IT manager</td>
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<td>Kurtz</td>
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<td>Email</td>
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### Management Staff

<table>
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<tr>
<th>Surname</th>
<th>Sex</th>
<th>Age</th>
<th>Occupation re DAT</th>
<th>Nationality</th>
<th>Interview (minutes)</th>
<th>Location</th>
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<td>Female</td>
<td>63</td>
<td>Manager/Consultant</td>
<td>USA</td>
<td>1:24:53</td>
<td>Interviewee’s home</td>
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<tr>
<td>Christine</td>
<td>Female</td>
<td>50</td>
<td>Author/DAT Program Designer-Consultant</td>
<td>Germany/USA</td>
<td>33:08/NA</td>
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<td>Danielle</td>
<td>Female</td>
<td>50</td>
<td>Consultant to SWTD Facilities</td>
<td>USA</td>
<td>30:08</td>
<td>Interviewee’s home</td>
</tr>
<tr>
<td>Jeff</td>
<td>Male</td>
<td>48</td>
<td>Director of Education, Dolphinarium</td>
<td>USA</td>
<td>31:23</td>
<td>Dolphinarium Office</td>
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</tbody>
</table>
### Dolphin-Assisted Therapists

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<td>66</td>
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<td>Mathew</td>
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<td>Physical Therapist</td>
<td>Germany</td>
<td>1:14:53</td>
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<td>Helga</td>
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<td>Hans</td>
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<td>39</td>
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<td>Nina</td>
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<td>Mary</td>
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<td>Asa</td>
<td>Female</td>
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<td>Special ED Child Psychologist</td>
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<td>36:33</td>
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<tr>
<td>Susanna</td>
<td>Female</td>
<td>46</td>
<td>Nurse/Psychologist/Family Therapy</td>
<td>Germany</td>
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### Dolphin Trainers

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<tr>
<td>Analise</td>
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<td>Head trainer</td>
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<td>Lette</td>
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<td>Tomasina</td>
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<td>Trainer</td>
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Appendix F:
Two Hypotheses: Physics and Dolphin-Assisted Therapy

Both the supportive and oppositional arguments in the contested spaces of DAT’s discourse seek to draw upon findings based in physical science. This appendix follows the history of DAT further, reviewing two theories that have been influential in its representations and understandings about possible means by which dolphins might produce unique physiological and psychological effects. It also describes oppositional arguments as well as some of the socio-spatial effects of these theories within and beyond its community of practice.

Two Neuro-physiological Theories
This section contains brief technical descriptions of both medical and physical concepts. Their inclusion serves to highlight the fact that quantitative research has been applied to theoretical understanding of DAT, connecting it to the corpus of modern scientific therapeutic practice. The tentative conclusions of both researchers presented here, both of which were placed into the DAT discourse to stimulate further research and discussion, have been used as cornerstones for the construction and validation of various supportive views of DAT, that is, they have been used to theorize, define, and justify therapeutic practices and to market DAT programs with attendant socio-spatial effects. They have been referenced and critically reviewed in oppositional arguments as well, argued against in efforts to divide DAT from other therapeutic practices. They have also been subjected to research and analysis in two studies, investigating the viability of these hypotheses. Analysis of these two studies closes this section.

Cole: The Sonophoresis Hypothesis
Interest in DAT in South Florida in the early 1990s led a research scientist (Cole, 1995) to analyse possible physical effects from the ultrasonic emissions of dolphins that make up their biosonar navigation, communication, and hunting systems. Needing to do electro-encephalographic (EEG) testing on human subjects before and after dolphin encounters to gather evidence to test his hypothesis, Cole designed and
built a portable, field-ready EEG system called MindSet™. With its use he was able to document an unusual combination of dolphin’s effects on brainwaves, using a pre-encounter and post-encounter method, taking readings at pool-side. His findings in these studies include:

1. the dominant brain frequency drops significantly (80% of 32 subjects had 4hz or greater decrease, primarily from Beta to low Alpha and mid-Theta range)
2. hemispheric synchronization occurs (the brainwaves emitted from both left and right hemispheres of the brain are in phase and of similar frequency. 75% of 30 subjects with 4˚ or less phase disparity)
3. background EEG reading is normalized, or more evenly distributed within the spectrum (60% of 24 subjects)
4. an anaesthesia-like response (very calm)

(adapted from Cole, 1996, p. 2).

These combined effects he called ‘the dolphin effect’, and noted that this particular combination of effects has not been found as a result of any other known activity (pers. com. from Cole to author, 2008).

The results of his research were presented at the International Symposium on Dolphin Assisted Therapy in Cancun, Mexico, in 1995 and in 1996. The International Dolphin Assisted Therapy and Research Association, sponsors of this symposium, was founded to host symposiums; to foster professionalism among DAT therapists; to further research in the field of DAT; to establish an international professional association of DAT practitioners; and to publish a peer-reviewed journal. Two symposiums were held but no further progress was made in the goals of IDATRA. (pers. com., Cole, D. and Brewer, D. to author, 1996). In these presentations, Cole made the observation that an average bottlenose dolphin can emit, under its control, over four times [8.3\text{w/cm}^2] the sonic power used in hospitals to shatter kidney stones [2\text{w/cm}^2], and that this ultrasonic power could explain some of the physiological effects seen in DAT (Cole, 1995, 1996). Cole’s hypothesis suggests that ‘cavitation-induced sonophoresis’, defined as “the enhancement of the transport of permeants, such as hormones, through cell membranes as a result of cavitation” (Cole, 1996, p.
(1996, p. 3) and that

“Cavitation-induced sonophoresis may alter the membrane potential of the postsynaptic terminal, influencing the influx of sodium and calcium ions and/or efflux of potassium ions. Altered postsynaptic potential cycles would be observed on scalp electrodes as variations in EEG signals” (1996, p. 3).

In other words, Cole’s use of electrical measurement of brain activity was being used to illuminate a potential mechanism for physiological changes. This was the first attempt to quantitatively measure and understand how dolphins might be causing some of the qualitative changes reported from DAT: a bridging, socio-spatially significant contribution to its discourse.

Birch: The Resonance Effect Hypothesis

In a parallel to Cole’s research, Birch, an Australian doctoral candidate, did EEG research of his own, and then did quantitative studies of the physics of dolphin biosonar. He found that it matched the range of resonant frequencies of various human bodily components – chest, abdomen, lower back, and head – and found that

“it allows for the postulation of a vibratory mechanical resonance phenomenon causing increased neurochemical (endorphin) release in human subjects” (Birch, 1998, p. 142)

and that:

“It is also proposed that the biosonar signal, pulsed at these low frequencies may result in activation of piezoelectric collagen molecules within the body and generate a whole body electric field pulsation which may lead to whole body entrainment of the receptive nervous system” (Birch, 1998, p. 142).

Birch’s Resonance Effect Hypothesis shows not only the same EEG outcomes as Cole’s research did, but then describes, in detail, how the specific wavelengths and power of dolphin biosonar couples mechanically with the physical sizes and vibratory capacities of the human body. From this Birch develops a model of the various bodily...
reactions to this kind of vibratory excitation. He notes that the endocrine glands, under vibratory stimulus, will release increased amounts of hormones, specifically ACTH and endorphins. These increases are caused by ‘microseizuring’, an effect he describes as brief moments of stress that can cleave

“Pro-opiomelanocortin (POMC) -- a DNA translation product…to release not only ACTH but ß-lipotropin, which can be cut further to produce ß-endorphin, a powerful morphine analog” (Birch, 1997, p. 57).

The role of endorphins and ACTH in pain relief, alteration of mental conditions toward positive mood states, nerve regeneration, and increased learning in autistic persons is detailed by Birch (1997, pp. 53-61). The effects of these hormones on the brain as they are distributed by the cerebro-spinal fluid and the circulatory system become detectable by EEG readings, thus strengthening the claim that EEG measurement can demonstrate physiological changes caused by dolphin biosonar.

Birch also notes that endorphins and ACTH produce analgesic and euphoric effects, providing a partial explanation for the transformative response to dolphin interaction, including the “alleviation of depression and existential malaise” (1997, p. 134).

Biosonar and Dolphin-Assisted Therapy

The Resonance Effect Hypothesis of Birch is well developed. Where Cole’s theory has strong EEG evidence for brain change, it is less rigorous in developing its Sonophoresis Hypothesis. Cole and Birch provide the first, and to date, only research that offer hypothetical explanations of how some of the physiological effects that have been observed and anecdotally reported as a result of DAT can be understood to occur. While different from each other, by linking the biosonar of dolphins, a physically mediated, directly measurable variable, to both physiological and psychological effects, the Sonophoresis Hypothesis of Cole and the Resonance Effect Hypothesis of Birch support each other in providing potential understandings of a physically produced range of effects. However, Birch points out that the Sonophoresis Hypothesis, while plausible when a dolphin is directly in contact with a human subject, does not explain reported effects of dolphin biosonar when the dolphin is not in contact with the subject (Birch, 1997, p. 136).
Among the effects found in published research on DAT that could be partially explained by the Cole and Birch hypotheses are

1. reduction of pain (Smart, 1995; Iikura et al., 2001)
2. reduction or cessation of clinical depression (Dobbs, 2000; Antonioli and Reveley, 2005; Schenk et al., 2009)
3. improved learning (Nathanson, 1989; Nathanson and de Faria, 1993; Nathanson et al., 1997; Nathanson, 1998; Hoagland and Hoagland, 2009)
4. euphoric and/or transformational mental states (DeMares and Krycka, 1998; Webb and Drummond, 2001; Servais, 2005; Dilts, 2008; Hargitay, 2011)
5. reduction in repetitive motions by persons with autism (Chia et al., 2009).

A combination of Cole’s and Birch’s hypotheses have been accepted as valid by Russian therapists (Lysenko et al., 2000; Batozsky, 2011; Chuprikov et al., 2013), a Peruvian pre-natal nursing specialist (Lael, 2010), and a German therapist working in Bali (Henco, 2012), among others. Some therapy programs have been designed around Cole’s ideas without reference to Birch’s (JDAT and Masatsugu, 2010; Josef, 2013).

In Opposition to Cole and Birch

At present (2013) there is little empirical evidence for the means by which dolphins might produce physiological effects in the practices of DAT. With only two prominent theories as to the possible means by which physiological effects may be produced, and only two studies researching these hypotheses, DAT, as a growing field of therapy, is understudied by the biological and physics disciplines. What follows is an analysis of research papers from peer-reviewed journals that have attempted to either support or challenge the Cole and Birch theories.

The Sonophoresis Hypothesis has been challenged (Brensing et al., 2003; Breitenbach et al., 2009). Brensing et al. begin their study by calculating the intensity of ultrasound produced by dolphins and find that

“it is likely possible [sic] that ultrasound generated by dolphins can have an influence on the human physiology under certain circumstances” (Brensing et al., 2003, p. 101).
Having established that dolphins can produce effective levels of ultrasound, Brensing et al. observed dolphins in a swim program in a controlled environment and calculated the time spent with their heads oriented toward humans who were swimming among them. This was intended to discover whether the dolphins were oriented so as to afford them the possibility of projecting their ‘biosonar’ at humans for periods hypothesized to be necessary for any effects from the ultrasonic emissions. Of the five dolphins observed, one (Sarah) paid particular attention to patients and was oriented toward the patients 50% of the time she was with them (the dolphin, Sarah, is a frequent participant in therapeutic sessions at the facility where this research was done, while the other four dolphins have not been recognized for their predilection to, nor have they been habituated to, act as therapeutic assistants. [Author’s personal knowledge, as documented in Mordaunt (2010-2013)].

However, because Brensing et al. were unable to measure actual ultrasonic emissions during the sessions, no real-time measurements of Sarah’s sonic output were recorded. Brensing et al. state:

“we observed that the heads of the patients were mostly out of the water, so that it is quite unrealistic to think that a hypothetical piezo-electric effect on the skull could have had an influence on the success of the therapy” (2003, p. 103).

Brensing et al. thereby restate the very objection that Birch makes about Cole’s hypothesis while not engaging with the resonance effect that Birch’s hypothesis suggests can have a physiological effect upon the body at levels of intensity far below those required for cavitation-induced sonophoresis. There are numerous other problems with the Brensing et al. study. It is not clear whether dolphins who have been trained to work with therapists and patients were being observed, dolphins who would reasonably be more likely to have focussed their ultrasonic emissions on a human; the one dolphin (Sarah) who did orient her head toward swimmers was a trained therapy dolphin, not an untrained one as stated [personal knowledge of the author]; and an assumption is made that electronically-created ultrasonic emissions in laboratory settings are qualitatively identical (in waveforms and effect) to the biosonar of dolphins. No attempt was made by Brensing et al. (2003) to observe the behaviour of trained dolphins in a DAT program. Therapists and trainers have pointed
out that some dolphins are more appropriate for therapy than other dolphins, due to personality differences (Cooper, A. (trainer), and Hoagland, D. (therapist) in Mordaunt, 2010-2013; Kuerschner, M., Head Therapist, interview 2011).

Despite their findings, Brensing et al. (2003) recommend further research on DAT by using EEG, EKG, and EMG readings of patient’s physiological responses to dolphin interaction – the same suggestions, and aims for further research, that are in the concluding passages of both Birch’s and Cole’s research papers.

Breitenbach et al. dismiss any possible effect from “ultrasonic waves” (2009, p. 288) because half of their experimental group [comprising 16%, n=20, of the total children studied] did not bodily enter the water to swim among dolphins, but interacted with them from poolside, including with their legs dangling in the water, yet their social skills improved to approximately the same degree as those who did enter the water.

“This result thoroughly refutes the mystical explanation of the healing effect of ultrasonic waves emitted by dolphins, which is often given by representatives of commercial dolphin-assisted therapy institutions” (Breitenbach et al., 2009, p. 288).

Breitenbach et al. do not cite any sources for the ‘mystical explanations’, leaving open a question as to who suggests this. Since the idea that there may be a physiological effect from a distinctly physical cause, that of ultrasonic waves of energy impacting living tissue, as is sometimes understood to be effective in physical therapy (Robertson and Baker, 2001; Bailey et al., 2003), the statement seems lacking in scientific rigour.

Breitenbach et al. avoid specific analysis of both Birch’s Resonance Effect Hypothesis and Cole’s Sonophoresis Model, with neither one cited. Despite their negative findings relative to dolphin biosonar, they find DAT to be effective as a therapy as long as social activities and professional counselling with the family are included in the overall program (2009, p. 288).

Kuhnert (interview, 2011) reports that Dolphin Aid has funded research in collaboration with a German aerospace engineering company to develop a sea-water immersed transmitter to enable real-time EEG readings to be taken from patients as
they are undergoing therapy with dolphins. No in-water tests have yet been conducted. This proposed research may be able to further understandings of the physics of biosonar as it produces effects in the human body, if such effects do indeed occur. However, without a physiological mechanism based on biosonar, DAT has been shown to have effects which can be drawn upon as part of programs of therapy. The assistance of dolphins in warm water, working alongside human therapists, whose effects on the physiology, neuro-physiology, and psychology of humans remains partially unexplained, is a topic worthy of more research. This need not be thought of as a necessary answer to the challenges to the legitimacy of DAT, however. As this research has shown, both dolphins and humans have been shown to benefit by the relationships that constitute the field of DAT, a finding previously unreported.

Summary
Several hypotheses have been offered to explain how dolphins might cause physical effects in DAT patients. Based on similar experimentation with electro-encephalogram technologies in each of the pilot studies undertaken to support the hypotheses, but taking different analytical approaches to the findings, the mechanism by which changes occur has been explained differently in these two studies. Neither is conclusive, and each suggests further research.

The two hypotheses, those of Cole and Birch, have been widely misrepresented as conclusive and have been used as ‘scientific’ support for some claims about the efficacy of DAT in the supportive parts of the DAT discourse.

Two studies have addressed the Cole and Birch hypotheses. One investigated the hypothetical notion that ultrasound produced by dolphins could have potential therapeutic effects, a theory common to both Cole and Birch’s research, while the other made a few observations during another study on DAT (Brensing et. al, 2007; Brietenbach et al., 2009). Neither study used rigorous testing of Cole and/or Birch’s hypotheses and their findings are inconclusive, leaving this aspect of the science of DAT a relatively unexplored space. Much remains to be done in this respect.
References for Appendix F


Mordaunt, R. (2010-2013) The Dolphin People. Film, Australia, Coolamon Films.


